ADDENDUM #1: SEE CHANGES TO BID OPENING DATE

NOTICE OF SOLICITATION

SERIAL 04166-C

INVITATION FOR BIDS FOR: BUS, TRANSIT, PRISONER TRANSPORTATION (NIGP CODE 07024)

Notice is hereby given sealed bids will be received by the Materials Management Department, Materials Management Center, 320 West Lincoln Street, Phoenix, Arizona 85003-2494, until 2:00 P.M./M.S.T. on ~~OCTOBER 12, 2004~~ **INDEFINITE,** for the furnishing of the following for Maricopa County. Bids will be opened by the Materials Management Director (or designated representative) at an open, public meeting at the above time and place.

All bids must be signed, sealed and addressed to the Materials Management Department, Materials Management Center, 320 West Lincoln Street, Phoenix, Arizona 85003-2494, and marked **"SERIAL 04166-C INVITATION FOR BIDS FOR BUS, TRANSIT PRISONER TRANSPORTATION (NIGP CODE 07024)."**

The Maricopa County Procurement Code ("The Code") governs this procurement and is incorporated by this reference. Any protest concerning this request for bids must be filed with the Procurement Consultant in accordance with Section MC1-905 of the Code.

ALL ADMINISTRATIVE INFORMATION CONCERNING THIS BID AND THE CONTRACTUAL TERMS AND CONDITIONS CAN BE LOCATED AT http://www.maricopa.gov/materials. ANY ADDENDA TO THIS SOLICITATION WILL BE POSTED ON THE MARICOPA COUNTY MATERIALS MANAGEMENT WEB SITE UNDER THE SOLICITATION SERIAL NUMBER.

BID ENVELOPES WITH INSUFFICIENT POSTAGE WILL NOT BE ACCEPTED
BY THE MARICOPA COUNTY MATERIALS MANAGEMENT CENTER

INQUIRIES:

WALT PRICE
PROCUREMENT CONSULTANT
TELEPHONE: (602) 506-3454

THERE WILL BE A MANDATORY PRE-BID CONFERENCE ON OCTOBER 5, 2004, 9:00 A.M. AT THE EQUIPMENT SERVICES DEPARTMENT, 3325 W. DURANGO ST., PHOENIX, AZ 85003.

NOTE: MARICOPA COUNTY PUBLISHES ITS SOLICITATIONS ONLINE AND THEY ARE AVAILABLE FOR VIEWING AND/OR DOWNLOADING AT THE FOLLOWING INTERNET ADDRESS:

http://www.maricopa.gov/materials/advbd/advbd.asp

VENDORS MUST ACKNOWLEDGE RECEIPT OF THIS ADDENDUM WITH THEIR BID

Signature: **Date:**

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NO RESPONSE

Contractors not responding to this bid are asked to complete this document and return it to Maricopa County Materials Management Department, 320 W. Lincoln St., Phoenix, AZ 85003-2494 or fax to 602/258-1573.

MARK OUTSIDE ENVELOPE "SERIAL 04166 -C

Responses must be received **BY 2:00 P.M.,** ~~OCTOBER 12, 2004~~ **INDEFINITE**. Contractors failing to submit a bid, or this document, may be subject to removal from the Maricopa County Materials Management Contractor List.

SERIAL **04166-C** TITLE: **BUS, TRANSIT PRISONER TRANSPORTATION (NIGP CODE 07024)**

CONTRACTOR NAME: _____

ADDRESS: _____

PHONE: _____ CONTACT: _____

REASON FOR NO BID:

_____ Insufficient time

_____ Do not handle product/service

_____ Other: _____

_____

_____

IMPORTANT

PLEASE READ BEFORE SUBMITTING YOUR BID

M/WSBE CONTRACT PARTICIPATION

For this Contract a combined M/WSBE goal of 0% involvement is established for Minority/Women-Owned Small Business Enterprises (M/WSBE). This goal may be attained singularly or by any combination thereof to create the overall designated percentage involvement goal. Instructions and required forms are included in the Minority/Women-Owned Small Business Enterprise Program Contracting Requirements section. The Maricopa County Minority and Women-Owned Small Business Enterprise Program, revised June 14, 2000, is incorporated by reference

The Materials Management Department of Maricopa County will endeavor to ensure in every possible way that Minority and Women-owned Small Business firms shall have every opportunity to participate in providing professional services, materials, and contractual services to the Materials Management Department of Maricopa County without being discriminated against on the grounds of race, religion, sex, age or national origin. The Maricopa County Minority Business Program, effective January 1, 1992, is incorporated by reference.

SPECIFICATIONS ON INVITATION FOR BID FOR: **BUS, TRANSIT PRISONER TRANSPORTATION (NIGP CODE 07024)**

1.0 INTENT:

The intent of these specifications is to describe a **BUS, TRANSIT, PRISONER TRANSPORTATION**, in sufficient detail to secure bids on comparable equipment. All units bid shall conform in strength, quality of the material and workmanship to what is usually provided to the trade in general. Bus shall be a current model under standard production by the manufacturer. Unit(s) will be used by the Maricopa County Sheriff Department for transporting inmates. *Unit shall be designed and equipped such that it will operate continuously in stop and go traffic with the ambient temperature reaching 125º F without any engine overheating problems. The air conditioning system shall be capable of maintaining an interior temperature, not to exceed 85º F with the bus sitting still and the engine at idle*. Unit shall be delivered to the Maricopa County Equipment Services Department, 3325 West Durango, Phoenix, Arizona, as covered by purchase order only.

2.0. TECHNICAL SPECIFICATIONS, MINIMUM:

NOTES:

The following notes are applicable where indicated; all dimensions provided are nominal.

A. Includes front energy absorbing bumper and rear bumper rub rail

B. Excludes fenders, splash guards, mirrors and side turn lights

C. Dimensions are based on coach in a normal operating position using 315/80R x 22.5 tubeless tires

D. Departure angle takes into account installed rear skid

E. Dimension is based on a door-to-door frame measurement, below the upper door hinge cover

F. Vehicle weight could vary from coach to coach, depending on equipment specified

2.1	LENGTH:		**ft/in**
	2.1.1	Over body	39' 10"
	2.1.2	Over bumpers - Basic	40' 6"
2.2	WIDTH:		**in**
	2.2.1	Overall - Body	102.00
2.3	HEIGHT:		**in**
	2.3.1	Overall - Over-roof	135.00
	2.3.2	Overall - Over roof hatches	137.00
2.4	WHEEL-BASE:		**in**
	2.4.1	Center Front Axle To Center Drive Axle	279.00
	2.4.2	Center Drive Axle To Center Trailing Axle	48.00

2.5	OVERHANG:		**in**
	2.5.1	Front Body	74.50
	2.5.2	Over Front Bumper	75.90
	2.5.3	Rear Body	127.54
	2.5.4	Over Rear Bumper With Rubber Cushion Pad	131.49
2.6	TRACK:		**in**
	2.6.1	Front	85.60
	2.6.2	Driving (center of duals)	76.50
	2.6.3	Trailing	85.60
2.7	TURNING RADIUS:		**ft/in**
	2.7.1	Front Tire - Right-hand turn	40' 9"
		Left-hand turn	40' 9"
	2.7.2	Front Bumper - Right-hand turn	44' 8"
		- Left-hand turn	44' 8"
	2.7.3	Steering Wheel Turns: Lock-to-lock	6
	2.7.4	Turning Angle - Right-hand	33^{o} - outer, 51^{o} - inner
		- Left-hand	29^{o} – outer, 43^{o} - inner
2.8	BUMPER CLEARANCE:		**in**
	2.8.1	Ground To Center Line - Front (apex)	22.25
		- Rear	24.00
2.9	GROUND CLEARANCE:		**in**
	2.9.1	Ground to body at center	11.75
	Approach angle		9^{o}
	Departure angle [IV]		8^{o}
	Break-over angle		5^{o}
2.10	ENTRANCE STEP HEIGHT:		**in**
	2.10.1	Ground To First Step - Coach in normal operating position	15.50
		- Coach in kneeled position	12.50
2.11	FLOOR HEIGHT FROM GROUND: (at axle)		**in**
	2.11.1	Front	50.00
	2.11.2	Rear	53.00

2.12	HEADROOM:		**in**
	2.12.1	Aisle to ceiling	78.25
2.13	PASSENGER, SIDE WINDOW ELEVATION:		**in**
	2.13.1	Floor surface to glass line - Top	60.80
		- Bottom	28.62
2.14	ENTRANCE DOOR:		**in**
	2.14.1	Clear opening width - (at door frame)	27.00
	2.14.2	Height of clear opening	84.63
2.15	EMERGENCY ESCAPE ROOF HATCHES:		**in**
	2.15.1	Length of opening, each	29.00
	2.15.2	Width of opening, each	19.50
	2.15.3	**Total Clear Opening Area**	**560.10 in**
2.16	VEHICLE WEIGHT:		**lbs**
	2.16.1	**Net basic**	30,500
	2.16.2	**Payload capacity**	15,500
	2.16.3	**Gross vehicle weight**	46,000

2.17 CAPACITIES:

2.17.1 **NOTES:**

The following notes are applicable where indicated, all dimensions provided are nominal:

2.17.1.1 Volume provided excludes the provision of the following:

2.17.1.1.1 Kneeling system control module

2.17.1.1.2 Air conditioning junction box

2.17.1.1.3 ATEC, DDEC junction box

2.17.1.1.4 110-volt inverter (option)

2.17.1.1.5 ABS control box

2.18	BAGGAGE COMPARTMENT VOLUME: (under floor)		**ft**
	2.18.1	Front	127.00
	2.18.2	Center	116.00
	2.18.3	Rear	83.00
	2.18.4	**Total Volume**	**326.00**
2.19	WINDSHIELD WASHER:		**US gal**
	2.19.1	Windshield Washer Fluid Reservoir	4.0
2.20	AIR COMPRESSOR RESERVOIR CAPACITY:		**in**
	2.20.1	Wet Tank	2,059
	2.20.2	Front Brake Service Dry Tank	2,059
	2.20.3	Rear Brake Service Dry Tank	2,059
	2.20.4	Parking Brake Release Tank	2,059
	2.20.5	Accessory Air Tank	815
2.21	ENGINE:		**US gal**
	2.21.1	Engine Cooling System - (surge tank and coolant recovery)	29.5
	2.21.2	Engine Lubricating Oil	7.5
2.22	FUEL TANK CAPACITIES:		**US gal**
	2.22.1	Main Tank Fuel Capacity - (95% of total tank volume)	182.0

2.23 TRANSMISSION OIL CAPACITY:

2.23.1 Initial fill (factory)*

2.23.2 Oil change*

(* Reference Allison Transmission spec sheet)

2.24 AIR CONDITIONING REFRIGERANT CAPACITY:

2.24.1 R134a

2.25 AXLES:

2.25.1 **Front Axle**:

2.25.1.1 The MERITOR front axle will feature

2.25.1.1.1 FH941 forged straight tube beam rated at 16,000 lbs (7,257 kg) capacity

2.25.1.1.2 Low friction, Easy Steer, king pin bushings, for longer maintenance intervals

2.25.1.1.3 Oil-lubricated wheel bearings equipped with oil-type seals and a visual sight gauge, in the hub, for checking oil levels

2.25.1.1.4 Straight king pins

2.25.1.1.5 Oil-lubricated tapered roller wheel bearings

2.25.1.1.6 Nodular cast iron hubs

2.25.1.1.7 Heavy duty non-serviceable tie rod ends

2.25.1.1.8 Bronze or brass bushed brake camshafts

2.25.1.1.9 Hub pilot, wheel mounting capability

2.25.1.1.10 Turning (wheel cut) angles: R/H turn – 33^{o} Outer wheel, 51^{o} Inner wheel; L/H turn – 29^{o} Outer wheel, 43^{o} Inner wheel

2.25.1.1.11 The caster angle shall be built into the suspension components and will be non-adjustable.

2.25.2 **Drive Axle**:

2.25.2.1 The full floating MERITOR drive axle will feature

2.25.2.1.1 Gross axle capacity of 22,500 lbs (10,206 kg)

2.25.2.1.2 Pressed steel housing fitted

2.25.2.1.3 Magnetic drain plug in the housing bottom

2.25.2.1.4 Nodular cast iron hubs

2.25.2.1.5 Tapered roller bearings lubricated by the differential oil

2.25.2.1.6 Wheel bearing oil seals

2.25.2.1.7 Hub pilot, wheel mounting capability

2.25.2.1.8 A single reduction differential will be provided in a 4.56:1 ratio. The differential ring and pinion gears will be mounted on tapered roller bearings, and the ring gear will be bolted to the differential case.

2.25.3 **Trailing Axle**:

2.25.3.1 The MERITOR wheel ends trailing axle will feature

2.25.3.1.1 Rated capacity of 10,000 lbs (4,545 kg)

2.25.3.1.2 Independent left and right swing arm stub axles, mounted in heavy-duty bronze bushing behind the drive axle

2.25.3.1.3 Nodular cast iron hubs

2.25.3.1.4 Tapered roller-type oil-lubricated wheel bearings with oil-type seals and a visual sight gauge, in the hub, for checking the oil level

2.25.3.1.5 Hub pilot, wheel mounting capability

2.25.3.1.6 Unloading device with a driver's controlled switch

2.26 BODY:

2.26.1 **Construction**:

The body will be of the integral type, with framework constructed of both 16 and 18 gauge stainless steel and high strength low alloy (HSLA) low corrosion steel. The HSLA steel will be used mainly in the upper structure, suspension, and high stress areas. The stainless steel will be used for the balance of the frame.

2.26.1.1 The exterior body panels will be composed of:

2.26.1.1.1 24 and 20 gauge stainless steel

2.26.1.1.2 18 gauge galvanized steel for the sidewall

2.26.1.1.3 12 and 16 gauge high tensile aluminum

2.26.1.1.4 Fiberglass-reinforced molded plastic

2.26.1.2 The exterior panel assembly will feature:

2.26.1.2.1 Riveting to frame members, with dissimilar metals separated by butyl base tape

2.26.1.2.2 Dissimilar metallic roof and sidewall panel joints sealed with butyl mastic tape

2.26.1.2.3 Corrosion-resistant fasteners where practical

2.26.1.3 An application of TECTYL undercoating, will be applied to the exposed underside frame and panel structure with the exception of mechanical components essential to suspension performance.

2.26.2 **Frame**:

2.26.2.1 Substructure - Two welded HSLA steel structures will be attached to the coach under structure at the front and drive axle locations, forming the base for the air suspension. Those at the rear will also connect to the engine transmission cradle rails, which will extend rearward.

Aluminum bulkheads will be provided between baggage compartments, and will also form a bay between the #2 and #3 baggage compartments for the fuel tank, batteries, heat, and air conditioning equipment. The rear-most and forward-most baggage compartment bulkheads will be stainless steel.

2.26.3 **Ferry Skids**:

Ferry skids, constructed of steel and offering a measure of protection to the mechanical components, will be provided. Skids will be welded to the substructure at the rear of the coach, welded and bolted to the sub-structure at the front of the coach.

2.26.4 **Towing Provision**:

In case the coach ever has to be towed or lifted (from the front end only) 0.75-inch (19.05-mm) tow eyes will be installed under the spare tire compartment trusses at the front of the coach. The tow eyes will have nominal 2.5-inch (63.5-mm) radius openings and will be painted with gray IMRON polyurethane.

Provision will also be made to allow the air-operated parking brake system to be recharged from an outside source to facilitate towing of a disabled vehicle.

2.26.5 **Jacking Provision**:

The coach will be fitted with jacking pads, nominally 2 inches square (51 mm) with a turned down flange of not less than 0.5 inches (12.7 mm) on each side, for each tire/wheel location. The jacking pads or coach axles will accommodate the lifting pads of a post hoisting system.

2.26.6 **Exterior Panels**:

2.26.6.1 Roof Panels – The front roof cap and rear crown panels will be nominally 0.13-inch (3.17-mm) thick fiberglass-reinforced molded plastic incorporating molded indentations for the marker, clearance, identification, and warning lights. The main roof panels will be 16-gauge, nominally 0.05-inch (1.29-mm) thick, high tensile aluminum primed with chromate-free epoxy. The roof panels will be bonded to the roof structure with polyurethane adhesive.

2.26.6.2 Side Panels – Two panels will be installed below the side windows and above the floor (belt) line on each side of the coach. One panel will be installed to the rear of the #1 passenger sash and below the other passenger sashes. The second panel will be installed below the first and below the #1 passenger sash. The 18-gauge primed and painted electro-galvanized steel surfaces will be nominally 0.05 inches (1.31 mm) thick. They will be riveted to the frame structure.

The panels and service doors below the floor line, which will be exposed to possible corrosion from the inside, will be fluted stainless steel. They will not be paintable.

2.26.6.3 Front Panels - The front body panel below the windshield will be stainless steel. A removable molded fiberglass trim fascia will be installed under the windshield. The headlamp bezels will be constructed of painted injection molded plastic.

2.26.6.4 Rear Panels - All rear panels will be flat, primed and painted stainless steel or fiberglass reinforced plastic.

2.26.7 **Exterior Moldings**:

2.26.7.1 The following moldings will be incorporated into the coach structure:

2.26.7.1.1 Extruded aluminum drip moldings, with drain holes, extending along both sides of the entire coach above the window line

2.26.7.1.2 Extruded black rubber covering the horizontal rivets below the sash

2.26.7.1.3 Black painted aluminum panel overlay covering the window posts

2.26.8 **Bumpers**:

2.26.8.1 The **front bumper** will be black urethane rubber constructed for energy absorbing capability and hinged at the bottom for access to the spare tire compartment. The release lever will be located at the top of the front roadside service compartment.

2.26.8.2 Extruded dent-resistant rubber **rub rails** will extend along both sides of the coach with the exception of the condenser compartment, entrance and front roadside service doors. The rub rails will be 5 inches (127 mm) wide and the ends will be closed with molded rubber caps. The entrance and front roadside service doors will be protected by an extension of the front bumper.

2.26.8.3 The **rear bumper**, which can be removed for engine access and removal, will be a black rubber energy absorbing bumper to provide additional protection from a rear end collision. The bumper assembly will consist of a rigid steel and aluminum inner support structure and have a hollow ribbed black urethane cover.

2.26.8.4 Extrusion-formed anodized-aluminum **corner bumperettes** will be mounted with rubber washers at the rear corners of the coach.

2.26.9 **Fenders**:

Two-piece molded EPDM rubber fenders will be installed at the rear wheel housings and one-piece molded rubber fenders will be installed at the front wheel housings. Stainless steel cap screws and retainers will be used in assembly.

2.26.10 **Splash Guards**:

Front and trailing wheel splash guards will be provided. They will be constructed of nylon reinforced neoprene and will measure nominally 24.00 inches (609.60 mm) and 21.25 inches (539.75 mm) wide, 0.16 inches (4.06 mm) and 0.19 inches (4.83 mm) thick respectively.

2.26.11 **Baggage Compartments and Doors**:

2.26.11.1 Three full-width under-floor baggage compartments offering a nominal capacity of 326 ft^3 (9.22 m^3) will be provided between the front and rear axles. The forward-most and rear-most compartment bulkheads will be lined with stainless steel panels.

The compartments will be automatically illuminated when the doors are opened, and will be pressurized by the coach heater and/or air conditioning blowers to minimizing dust and dirt build-up.

The compartment doors will be sealed, pantograph vertical lift types incorporating an air operated locking systems. Each door will

2.26.11.1.1 Be constructed of fluted non-paintable stainless steel

2.26.11.1.2 Have flush-mounted break-away type latch handles with provisions for a padlock and customs seal

2.26.11.1.3 Include electro-zinc plated latch bars

2.26.11.1.4 Be counter-balanced with two springs

2.26.11.1.5 Have a manual safety hold-open device

2.26.11.2 The #1 and #2 compartment doors will measure nominally 55.75 x 35.25 inches (1,416.05 x 895.35 mm). The #3 doors will measure 38.75 x 35.25 inches (984.25 x 895.35 mm).

2.26.11.3 Rubber bumpers will be installed on the interior of the doors to prevent the doors from striking the coach body when opened.

2.26.12 **Service Doors**:

2.26.12.1 Spare Tire Access Door – An access door will be provided in the front bumper, which will be held in position by a latching link, hinged at the bottom and counter-balanced by a spring. A release handle will be accessible from the front roadside service door. The spare tire compartment will be accessed through this door.

2.26.12.2 Front Roadside Service Door – A service door measuring nominally 31.13 x 21.31 inches (790.70 x 541.27 mm) will be located on the roadside of the coach below the driver's floor line. It will be front stainless steel hinged and held open by a rod-type prop. This door will provide access to the auxiliary air tank, parking brake emergency air tank charging valve, steering components, windshield washer reservoir and horns. A keyed alike Ford lock shall be supplied.

2.26.12.3 Condenser Compartment Door – A service door measuring nominally 51.00 x 30.75 inches (1,295.40 x 781.05 mm) will be located between the #2 and #3 baggage compartment doors on the roadside of the coach. It will be front-hinged, stainless steel piano-type, held closed by quarter-turn slotted-head fasteners and held open by a latching link. This door will be a grill instead of a flat panel, and will provide access to the door-mounted condenser, fans, receiver tank, filter/dryer, and other air conditioning components.

2.26.12.4 Engine Compartment Doors - The engine compartment will be accessible through a service door on each side at the rear of the coach and two service doors at the immediate rear of the coach.

2.26.12.4.1 The ***Side Engine Compartment Service Doors*** will measure nominally 39.25 x 33.00 inches (996.95 x 838.20 mm) at the extreme positions. They will be tapered rearward and will be front-hinged using pocket-type stainless steel hinges. The door latches will be activated by paddle-type handles and held open by a rod-type prop. The curbside door will provide access to the trailing axle air dump valves. A keyed alike Ford lock shall be supplied.

2.26.12.4.2 The ***Rear Engine Compartment Doors*** will measure nominally 26.38 x 34.50 inches (670.05 x 876.30 mm). They will be outer side-hinged using pocket type stainless steel hinges. A paddle-type handle will activate the door latches and a rod-type prop will hold the door open. The door post gussets will be stainless steel. A keyed alike Ford lock shall be supplied.

2.26.12.5 Radiator Door – A louvered door measuring nominally 79.81 x 33.88 inches (2,027.17 x 860.55 mm) will be provided at the rear of the coach above the engine compartment doors. Two gas springs will help open the door and a locking mechanism will keep it open. A strap will be provided to help close the door. The door will be held closed by two spring-loaded latches. This door will provide access to the radiator.

2.26.12.6 Fuel Tank Access And Filler Door – An access panel measuring nominally 22.63 x 35.25 inches (574.80 x 895.35 mm) will be located on the curbside of the coach between the #2 baggage compartment door and the battery compartment door. The panel will be retained at the top by two bolts and at the bottom by pins. The fuel tank assembly and drain plug can be accessed and removed through this panel. A keyed alike Ford lock shall be supplied.

A filler door measuring nominally 10.75 x 7.50 inches (273.05 x 190.50 mm) will be located in the top section of this access panel. The filler door will be hinged at the front with a continuous type stainless steel hinge, and will have a single over-center spring to hold the door in the open. A keyed alike Ford lock shall be supplied.

2.26.12.7 Voltage Regulator Access - Will be mounted in the battery compartment.

2.26.12.8 Electrical Front Junction Panel Access Door – An access door measuring nominally 30.63 x 27.50 inches (778.00 x 698.50 mm) will be located below the driver's window on the roadside of the coach. The door will be of sandwich construction with a core of insulation, and will have a continuous front, stainless steel hinge. This door will provide access to the main electrical front junction panel. A keyed alike Ford lock shall be supplied.

2.26.12.9 Battery Compartment Door – A door measuring nominally 27.63 x 35.25 inches (701.80 x 895.35 mm) will be located between the fuel tank access panel and the #3 baggage compartment door. The door will feature

2.26.12.9.1 Keyed alike lock

2.26.12.9.2 Top stainless steel hinge

2.26.12.9.3 Two spring-loaded latches, activated by a paddle type handle, to hold door closed

2.26.12.9.3.1 Prop rod and pin assembly to hold the door open

2.26.12.9.3.2 Hinged interior access cover inside the door to facilitate inspection, lubrication, and adjustment of the door's latch mechanism, lock, and rub rail

2.26.12.9.3.3 Small stainless steel hinged access panel, with keyed alike lock, to the battery main disconnect switch located within the compartment

This door will provide access to the batteries, battery main disconnect-switch, air filter, collapsible reflector triangles, run-up block, battery equalizer, and spare fuses.

2.26.12.10 Rear Roadside Service Door – A service door with a nominal linear dimension over a tapered curved surface of 30.00 x 20.13 inches (762.00 x 511.30 mm) will be located at the rear roadside corner of the coach below the louvers. It will be pocket-type stainless steel outer-side hinged, held closed by quarter-turn slotted-head fasteners. The door will provide access to the roadside taillights. To open the door, a hidden latch shall be supplied, that can only be accessed from inside the engine compartment when the engine compartment door is open.

2.26.12.11 Rear Curbside Service Door – A service door with a nominal linear dimension over a tapered curved surface of 30.00 x 20.13 inches (762.00 x 511.30 mm) will be located at the rear curbside corner of the coach, below the louvers. It will be pocket-type stainless steel outer-side hinged, held closed by quarter-turn slotted-head fasteners. The door will provide access to the curbside taillights. To open the door, a hidden latch shall be supplied, that can only be accessed from inside the engine compartment when the engine compartment door is open.

2.26.12.12 Entrance Door

An electrically controlled, air-operated, power sedan-style door, with a SCHLAGE keyed lock, will be located forward of the front curbside wheel and will feature

2.26.12.12.1 Welded stainless steel construction

2.26.12.12.2 Cast upper and lower hinge assemblies

2.26.12.12.3 Molded fiberglass-reinforced panel on the interior of the door with a stainless steel kick panel on the lower portion

2.26.12.12.4 Stainless steel lower hinge pin which pivots inside a spherical bearing

2.26.12.12.5 Diagonal grab rail of 1.25 inch (31.75 mm) diameter stainless steel tubing with a 1.50 inch (38.10 mm) knuckle clearance

2.26.12.12.6 Primary double-glazed window of AS-2 laminated heat-absorbing safety glass in upper half of door

2.26.12.12.7 Secondary window of 0.5-inch (12.7 mm) acrylic in the lower section of the door

2.26.12.12.8 Momentary switch providing door control for the driver, in the right-hand switch panel

2.26.12.12.9 Remote external control located in a side-wall pocket by the entrance door, just below the belt line molding

2.26.12.12.10 Positive automatic air lock with overrule. The air lock will be automatically actuated by a micro switch when door is in the closed position

2.26.12.12.11 Air-operated latch assembly accessible through a stainless steel panel between the passenger modesty panel and the stepwell

The non-symmetrical door will have a clear opening width of 27 inches (686 mm) up to a height of 58 inches (1,473 mm) with an intrusion of 3 inches (76 mm), into the opening for the door hinge, at a height of 41 to 47 inches (1,041 to 1,194 mm). The clear door opening height will be 84.5 inches (2,146.3 mm).

2.26.12.13 Rear Roadside Exit Door

A door will be provided on the rear roadside of the coach to the rear of the #6 side window and above the roadside engine compartment door. It will have a nominal clear opening of 33.25 x 48.75 inches. It will be manually operated and opens from the outside only. A SCHLAGE lock will be provided on the exterior of the door. The exterior will be paintable aluminum and the interior will be leather-grain embossed aluminum.

Two grab rails will be mounted vertically, one below the other, on the side of the coach to the rear of the door. A footstep will be recessed into the side of the coach below the door, and two footsteps will be recessed into the door of the rear roadside service door, one below the other. *No prop rod shall be included to hold door in open position*.

2.26.13 **License Plate Holder**:

A license plate holder consisting of, one recessed lighted housing with bolts and nylon nuts will be provided at the rear of the coach. It will also accommodate one license plate.

2.26.14 **Exterior Mirrors**:

There will be two electrically operated exterior B&R, or approved equal, rear view mirrors mounted at each front windshield outer post. The mirrors will be non-heated and capable of folding against the coach. They will feature:

2.26.14.1 Distance from the ground of nominally 72 inches (1,829 mm) with coach in normal operating position

2.26.14.2 Plate glass measuring nominally 8.75 x 9.75 inches (222.25 x 247.65 mm) with a manually adjustable convex mirror just below measuring nominally 3.88 x 6.00 inches (98.55 x 152.40 mm) at the extreme width and height positions

2.26.14.3 Two-position joystick remote control, for plate glass only, at the control panel left of the driver

2.26.14.3.1 Mirror cover constructed of plastic with the remaining mirror arms, brackets and head constructed of aluminum with a black Imron finish

2.26.14.3.2 A small convex mirror shall be provided on the curb side mirror arm to provide a clear view of the front of the coach

2.26.15 **Exterior Painting and Lettering**:

2.26.15.1 **Exterior painting** will feature

2.26.15.1.1 DuPont Imron polyurethane enamel all white applied to painted areas of the coach (front, rear, and side).

2.26.15.1.2 Headlight bezels painted a corresponding color

2.26.15.1.3 Roof area, extending nominally 42 inches (1,067 mm) either side of the coach parallel to roof center line will be painted white only

2.26.16 **Insulation**:

The following insulation will be integrated into the coach construction. All measurements are nominal.

2.26.16.1 2-inch (51 mm), compressed at installation, resin-coated, medium-density fiberglass in the roof

2.26.16.2 Rigid polyurethane foam of varying thicknesses, optimizing available space, in the sidewall supplemented with a 0.037 inch (0.940 mm) thick fiberglass vapor barrier between the foam insulation and the interior sidewall panels

2.26.16.3 0.5-inch (12.7 mm) thick high-density fiberglass under the floor in the driver' area

2.26.16.4 2-inch (51 mm) thick slit high-density fiberglass in the front of the coach below the windshield

2.26.16.5 1-inch (25 mm) Mylar-faced foam in stepwell area

2.26.16.6 16-gauge noiseless stainless steel and nominal 1.5 inches (38.1 mm) thick aluminum-Mylar faced acoustic composite insulating the rear of the coach. The acoustic composite will be a mix of foam and vinyl barium sulfate rubber layers

2.26.16.7 2-inch (51 mm) foamed in place polyurethane and 0.75-inch (19.05 mm) thick aluminum-Mylar faced acoustic insulating the upper rear bulkhead area

2.26.16.8 1-inch (25 mm) aluminum-Mylar faced acoustic composite insulation, over noiseless stainless steel in the engine compartment side of the rear enclosure panel, to attenuate heat transmission and maintain noise levels in the rear interior of the coach at levels not higher than 83 decibels

2.26.17 **Floor**:

The floor will be flat throughout with a full step up at the driver's area. The floor will be attached to the under-frame with adhesive and rivets. Wheel housings will not extend above the floor line.

The floor boards will be 0.5-inch (12.7-mm) five-ply fir plywood. The plywood will be good on one side, water-resistant, and will meet the Canadian Standards Association (CSA) standard. All surface voids will be filled and sanded smooth. 0.08-inch (2.00-mm) thick ALTRO 25903 storm vinyl will be installed over the floorboards. A white standee line in the aisle at the front of the coach and violation decals above the entrance door and on the driver's air conditioning panel will be provided in accordance with Department of Transportation requirements.

Two stainless steel tracks will be welded to the floor, one on each side of the coach, running the length of the passenger area. These tracks will be used to bolt passenger seats into place. An extra set of tracks will be welded in place in the front guard area of the coach. These tracks may be used to bolt forward or sideways facing guard seats into place. Filler strips will be fit into the tracks in between all seat pedestals closing off all open floor track. The strips can be removed only when the seat pedestals are removed.

2.26.18 **Step-well**:

The step-well will be constructed from stainless steel, with exposed front and rear faces in a satin finish. It will feature

2.26.18.1 Heated air supply

2.26.18.2 Three steps of not more than nominal 9.5 inches (241.3 mm) in height

2.26.18.3 Grab rails of 1.25 inches (31.75 mm) diameter stainless steel tubing with 1.50 inch (38.10 mm) knuckle clearances, on both sides of the entrance and horizontally on top of the dash

2.26.18.4 0.08-inch (2.00 mm) thick ALTRO 25903 storm vinyl step treads with a contrasting 3.00 inch (76.20 mm) wide white leading edge (nosing).

2.26.19 **Interior Panels**:

Interior paneling will be composed of

2.26.19.1 Leather-grain embossed aluminum ceiling panels

2.26.19.2 Aluminum moldings covering the ceiling panel joints

2.26.19.3 Leather-grain embossed aluminum sidewall panels

2.26.19.4 Leather-grain embossed stainless steel rear interior enclosure panel

2.26.19.5 Stainless steel longitudinal air ducts

2.26.19.6 Painted black glossy aluminum caps covering the body posts between windows

2.26.19.7 Fiberglass-reinforced plastic paneling at the upper portion of the entrance door and below the left-hand control console

2.26.19.8 Stainless steel driver's toe shield

2.26.19.9 Driver's aluminum floor plate in front of steering column

2.26.19.10 Painted gray louvered aluminum panel covering the driver's evaporator assembly

2.26.19.11 Windshield divider panel and "A" post with durable material that will not hold dirt

2.26.20 **Passenger Modesty Panel**:

A passenger modesty panel measuring nominally 29.5 inches (949.3 mm) in height will be installed in the curbside of the coach just to the rear of the entrance door. It will separate the step-well from the rest of the coach. The panel will be made of leather-grain embossed aluminum attached to a tubular stainless steel frame. A grab rail will be mounted diagonally to the step-well side of the panel. A three ring binder holder will be mounted on the guard side of the modesty panel.

2.26.21 **Driver's Protective Panel**:

A driver's protective panel will be installed in the roadside of the coach behind the driver's seat. The leather-grain embossed aluminum panel will be attached to the floor and to a floor-to-ceiling frame of stainless steel tubing. The panel will measure nominally 30.00 inches (762.00 mm) in height. A three ring binder holder will be mounted on the driver's side of the barrier.

2.26.22 **Driver's Seat**:

A National Seating Company model 93-AB adjustable air ride driver's seat will be provided. It will feature

2.26.22.1 Intermediate-back seat with power air lumbar and three-position rear cushion adjustment

2.26.22.2 Dual-ride air spring suspension with five inches of vertical travel

2.26.22.3 Rocker switch air-control module on left side of seat

2.26.22.4 Adjustable headrest

2.26.22.5 Two folding armrests LH/RH, upholstered in durable black vinyl

2.26.22.6 Recline range of -2 to 12^{o}

2.26.22.7 7-inch (178 mm) fore-aft slider mechanism

2.26.22.8 Back and seat cushion with full-depth molded urethane foam, upholstered entirely in durable black vinyl

2.26.22.9 Black powder-coated finish on frame and pedestal

2.26.23 **Guard Seats**:

Two guard seats shall be provided as follows:

2.26.23.1 The front right-hand guard seat shall be a National model 93-B seat provided on the curbside of the coach behind the passenger modesty panel and be upholstered in durable black vinyl. The seat shall face forward and include a shoulder and lap belt. A lockable metal cash box that can be used for storage shall be shipped loose with each forward facing seat. A 110 volt power source will be provided on the heat duct to the rear of the passenger modesty panel. As well a small box will be mounted to the curbside sidewall to the rear of the passenger modesty panel that will contain a 12-volt power source, a control switch for the overhead light and a microphone so the front guard can communicate with the inmates.

2.26.23.2 The front left-hand guard seat shall be a National model 93-B seat provided on the roadside of the coach behind the driver's modesty panel and be upholstered in durable black vinyl. The seat shall face forward and include a shoulder and lap belt. A 110 volt power source will be provided on the heat duct to the rear of the passenger modesty panel. As well a small box will be mounted to the curbside sidewall to the rear of the passenger modesty panel that will contain a 12-volt power source, and a control switch for the overhead light.

2.26.24 **Passenger Seats**:

American model 1036 and 1045 (formerly TSI seating Co.) fiberglass center T-pedestal inmate seats shall be provided and arranged, in a layout to include 63 inmates behind the front wall-to-wall partition. Seats shall be mounted in a stainless steel floor track that is welded to the vehicle frame. All fasteners in the seats and seat mountings shall be tamperproof. Seat track filler caps to be secured to prevent prisoner removal. Seats to be tan in color and include a "Plexus" finish.

2.26.25 **Partitions and Cells**:

A powder coated steel partition will be installed at the front of the coach and will reach from one side to the other. It will reach from the floor to just below the ceiling and will have a lockable 22-inch wide door with a SCHLAGE lock in the aisle with a smaller access door at eye level. Acrylic shields will be installed on either side of the door for the front and rear partition. The front partition shall be positioned 40 inches rearward measured from the passenger modesty panel.

Three cells shall be provided located on each side of the coach. The cells will be powder coated perforated steel walls to the rear of the front partition. Each cell will have a lockable entrance door with a smaller access door at eye level. To the rear of the third cell will be a second partition to divide the portion of the coach containing cells from the portion of the coach containing passenger seats. This partition shall stretch from one side of the coach to the other and will have a lockable 22-inch door wide door with a SCHLAGE lock in the aisle with a smaller access door at eye level.

2.26.26 **Windows/Sash**:

Thirteen passenger side windows will be provided: seven on the curbside and six on the roadside of the coach. They will be set in rubber mountings in extruded black anodized aluminum frames.

2.26.26.1 #1 Road and Curbside Windows

2.26.26.1.1 Nominal 32 x 52 inches clear opening

2.26.26.1.2 0.5-inch ALMACOAT #2370 bronze cast acrylic with approximately 10% light transmittance

2.26.26.1.3 Aluminum retainers on interior of windows to prevent inmates from removing the rubber window mountings

2.26.26.1.4 #1 curbside window will include a slider window with a screen.

2.26.26.2 #2-6 Roadside Windows

2.26.26.2.1 Nominal 5 x 52 inches (127 x 1,321 mm) clear opening

2.26.26.2.2 0.5-inch (12.7-mm) clear cast acrylic

2.26.26.2.3 Perforated metal panel over interior of window

2.26.26.2.4 Interchangeable

2.26.26.3 #2-7 Curbside Windows

2.26.26.3.1 Nominal 5 x 52 inches (127 x 1,321 mm) clear opening

2.26.26.3.2 0.5-inch (12.7-mm) clear cast acrylic

2.26.26.3.3 Perforated metal panel over interior of window

2.26.26.3.4 Interchangeable

2.26.26.4 Six horizontal security bars will be provided on the interior portion of the #1 L.H. and R.H window that is accessible behind the front partition.

2.26.27 **Driver's Window** - A fixed full vision driver's window, framed in black anodized aluminum, will be provided. It will include a large lower, which will slide from back to front of coach. It will have double-glazed AS-2 laminated heat-absorbing safety glass with an 18-inch (457-mm) opaque masking-strip applied to the top portion of the window.

2.26.28 **Entrance Door Window –** Two fixed one-piece windows will be provided in a rubber mounting in an extruded black anodized aluminum frame. The windows will be as follows:

2.26.28.1 Primary window of 0.69-inch (17.53 mm) thick double-glazed AS-2 laminated heat-absorbing safety glass in the upper section of the door

2.26.28.2 Secondary window of 0.5-inch (12.7 mm) acrylic with a nominal visible dimension of 11.13 x 20.75 inches (282.70 x 527.05 mm) in the mid lower section of the door

2.26.29 **Windshield** - A large, two-piece curved windshield will be provided at the front of the coach sloping back a nominal 13^{o} and will feature:

2.26.29.1 AS-1 laminated safety glass, installed in the body opening with a black zipper rubber molding

2.26.29.2 Interchangeable left and right windshields, providing 73% light transmittance, with a non-interchangeable shader at the bottom of the windshields

2.26.29.3 12-inch (305-mm) wide opaque masking strip applied to the top portion of the windshields

2.26.30 **Windshield Wipers and Washers**:

2.26.30.1 Windshield Wipers

2.26.30.1.1 Two heavy-duty electrically controlled self-parking Bosch electric windshield wiper assemblies will be provided: one for each windshield. They will feature

2.26.30.1.2 Individual left and right rotary controls on the dash. The regulators will provide variable intermittent or constant wiper speed as dictated by control adjustment

2.26.30.1.3 Wiper motors, which can be removed from the exterior of the coach through access panels at the front of the coach. Each motor will incorporate a 0.63-inch (16.00 mm) diameter drive shaft

2.26.30.1.4 Pantograph wet-type wiper arms with 26-inch (660-mm) flexible wiper blades mounted in a holder

2.26.30.1.5 Wiping arc will be a nominal 74^{o} and the total swept area for each blade will be a nominal 988 in^2 (6,375 cm^2). Total swept area, both blades, will be nominal 1,976 in^2 (12,749 cm^2).

2.26.30.2 Windshield Washers:

Electric windshield washer pumps will be provided. They will feature

2.26.30.2.1 Individual left and right push-to-activate controls integrated into the wiper controls

2.26.30.2.2 Polyethylene, 4 US gallon (15 L) capacity reservoir in the front roadside service compartment

2.26.30.2.3 Two outlet nozzles affixed to the wet-type wiper arms and two exterior outlet nozzles below each half of the windshield

2.26.31 **Sun Visors**:

Three flip-up black sun visors will be provided: one for the driver's window and one for each of the windshields. The visors will be mounted 11-inches (279-mm) below the top of the windshields.

2.26.32 **Interior Rear View Mirror**:

Two flat-surface fully adjustable rear view mirrors will be installed on the inside of the coach to provide the driver with a good view of the coach interior. The mirrors will measure 6 x 30 inches (152 x 762 mm) nominal size, and will be mounted in the upper corners of the windshields.

2.26.33 **Roof Hatches**:

A roof-mounted hatch will be provided above the center aisle to the rear of the driver's area. It will be manually operated and opens from the inside only. It will have a prop rod to hold it open. The hatch may be used as an emergency exit.

A roof-mounted hatch will be provided in the rear roadside corner of the coach.

The hatches will be designed to provide emergency ventilation through the coach, ram-front and exhaust-rear. Both hatches will feature

2.26.33.1 Prop rods to support hatches in the open position

2.26.33.2 Nominal size of 29.0 x 19.5 inches (736.6 x 495.3 mm) each

2.26.33.3 Nominal distance of 3.5 inches (88.9 mm) between the roof lip and the bottom of the hatch, when hatches are propped open

2.26.34 **Safety Equipment**:

Standard safety equipment will meet or exceed DOT regulations at time of manufacture, and will consist of the following:

2.26.34.1 5.0 lb. dry chemical fire extinguisher stored in the right-hand guard area.

2.26.34.2 Three signal flares, in a container, mounted to the curbside of the rear bulkhead in the #1 baggage compartment

2.26.34.3 Ten-unit first aid kit (not including a body fluids kit) mounted on the passenger modesty panel

2.26.34.4 Three collapsible reflector triangles stored in a container in the curbside battery compartment

2.26.35 **Tools**:

The following standard tools will be provided:

2.26.35.1 12-ton (10,885 kg) hydraulic jack in the spare tire compartment; the jack handle will be stored in the baggage compartment

2.26.35.2 Spare parts kit including a tamper-proof tool kit, belts, and bulbs shipped loose in baggage compartment

2.26.35.3 Wheel lug wrench and wooden run-up block (nominal 3.5 inches, 88.9 mm in height) in the battery compartment. Some parts to the wheel lug wrench will be stored in the # 3 baggage compartment

2.26.36 **Miscellaneous**:

Additional standard equipment will include:

2.26.36.1 Key to operate all slotted-head fasteners on compartment doors. The key will be located on a hook left and forward of the driver's seat

2.26.36.2 Provide ten (10) SCHLAGE lock keys and two (2) Ford ignition keys

2.26.36.3 Collapsible driver's beverage holder in the left-hand control console

2.26.36.4 Driver's coat hook to the left and rear of the driver's seat above the window line

2.27 BRAKES:

General Description, Shoes, Linings, and Drums

Brake components shall be approved and certified in accordance with applicable Dynamometer requirements of Federal Motor Vehicle Safety Standards (FMVSS) (paragraph S5.4).

MERITOR Q Plus brakes will be installed on all axles. MGM spring-type 30/36 brake chambers will be installed on the drive axle.

Two-shoe internal expanding, air-operated service brakes will be provided on all axles. The brakes will feature

2.27.1 Bronze-bushed MERITOR camshafts

2.27.2 MGM type 24 long-stroke brake chambers on the front axle

2.27.3 MGM type 12 long-stroke brake chambers on the trailing axle

2.27.4 MERITOR automatic slack adjusters

2.27.5 ABEX non-asbestos high-friction mix 931-162 linings, bolted to fabricated steel shoes

2.27.6 ABS brake system per Department of Transportation (DOT) Regulations

Upon brake application, air will be applied to the service brake chamber diaphragms, which will extend push rods actuating the slack adjusters. The slack adjusters will rotate S-cams to press the brake shoes against the drums.

2.27.7 **Front Axle Brake Shoes** will be 6.0 inches (152.4 mm) wide and will use 16.5-inch (419.1-mm) diameter iron alloy brake drums.

2.27.8 **Drive Axle Brake Shoes** will be 8.62 inches (218.9 mm) wide and will use 16.5-inch (419.1-mm) diameter iron alloy brake drums.

2.27.9 **Trailing Axle Brake Shoes** will be 4.0 inches (101.6 mm) wide and will use 15.0-inch (381.0-mm) diameter iron alloy brake drums.

2.27.10 **Service Brake Controls**

The brake application valve and the rear brake relay valve will be BENDIX type E-15 nd type R-12 DC.

2.27.11 **Emergency - Parking Brake**

An air-operated parking brake system will be provided, in compliance with FMVSS 121, and will incorporate:

2.27.11.1 MGM spring-type drive axle brake chambers having both service and parking brake diaphragms

2.27.11.2 Separate, protected air reservoir providing air to the parking brake system

2.27.11.3 Manual activation by operating the push-pull valve located to the left of the driver, and automatic activation should air pressure in the emergency parking reservoir drop to an unsafe level (nominal 45 psi, 310 kPa)

2.27.11.4 Once applied, emergency brakes will be held in place by a spring, and will not be affected by reduced air pressure in the event of air loss in the parking brake system.

2.28 AIR SYSTEM:

The air compressor will be a BENDIX BA921 single cylinder, fully unloading type, with an output of 13 ft^3/min (0.37 m^3/min.) at 1,250 engine rpm. The naturally aspirated compressor will be frame-mounted on the engine and oil-lubricated. A flexible Teflon-lined stainless steel braid-covered discharge line will run between the compressor and the air discharge muffler (ping tank). Correct operating pressures will be maintained by a governor, provided to load and unload the compressor.

The majority of the air system components will be BENDIX models. The air dryer will be a BENDIX AD-IP air dryer with a pressure safety valve set at 140-150 psi (965-1,034 kPa).

The system will use five air reservoirs, each equipped with a manual draincock for servicing, with a total nominal capacity of 9,051 in^3 (148,319 cm^3) as follows:

2.28.1 **One supply (wet) tank** with a capacity of 2,059 in^3 (33,741 cm^3)

2.28.2 **One front service brake (dry) tank** with a capacity of 2,059 in^3 (33,741 cm^3)

2.28.3 **One rear service brake (dry) tank** with a capacity of 2,059 in^3 (33,741 cm^3)

2.28.4 **One parking brake tank** with a capacity of 2,059 in^3 (33,741 cm^3)

2.28.5 **One suspension/accessory air tank** with a capacity of 815 in^3 (13,355 cm^3)

2.28.6 **The low air pressure warning system** will consist of a telltale light and audible alarm which will cut in at a low of 68 psi, and shut off when pressure reaches 90+ psi. Two air pressure gauges, indicating air pressure in the front and rear brake air tanks, will also be included in the instrument panel.

2.28.7 **Valves -** One-way check valves between the supply and each of the service brake tanks, adjacent to the service brake tanks that supply the service brake system with air, will prevent loss of service brake system air-pressure in the event of pressure loss in the wet tank.

A pressure protection valve, which will remain closed until air pressure in the service brake tank exceeds 85 psi (586 kPa), will be provided between the brake air system and all other air system components to assure fast build-up of service brake air.

The parking brake tank will be fully protected from the rest of the air system by a one-way check valve.

Filter or regulator valves will be provided in the auxiliary air system for air-operated devices such as wipers, door locks and horn.

Schrader valves will be provided in the front roadside service compartment and the rear curbside engine compartment allowing the addition of air to the coach air system from an external source.

2.28.8 **Air Line Tubing**:

All 0.375-inch (9.525 mm) or larger nylon air line tubing, conforming to SAE Standard J844-Type 3A or 3B, shall be color-coded as follows:

2.28.8.1 **Green** - primary (rear) brakes and supply

2.28.8.2 **Red** - secondary (front) brakes

2.28.8.3 **Brown** - parking brakes

2.28.8.4 **White, Black** – accessories

2.28.8.5 **Blue** – suspension

2.28.8.6 **Yellow** – governor

Note: fuel system tubing will be color-coded orange.

2.29 ENGINE COOLING SYSTEM:

2.29.1 **Radiator and Fan Clutch**:

The four-cycle diesel engine will use a radiator and charge air cooler (heat exchanger) system mounted side by side, located at the rear of the coach above the engine. It will feature

2.29.1.1 CORTEN structural steel, frame construction with stainless steel frame supports

2.29.1.2 Aluminized steel oval tubing and fins, radiator construction with 12 fins per inch

2.29.1.3 Fan clutch for the radiator which will engage when the coolant temperature reaches 208° F (98°C) and disengage at 203° F (95° C)

2.29.1.4 Self-adjusting belt tighteners, for the fans, maintaining belt tension

2.29.1.5 All low positions in the water-based cooling system equipped with brass drain cocks

2.29.1.6 Oetiker constant-torque hose clamps

2.29.1.7 Silicon hoses

2.29.1.8 Extended life organic acid technology, based engine coolant and antifreeze shall be provided for freeze, anti-boil, and corrosion protection

2.29.2 **Surge Tank**:

The radiator surge tank, mounted above the radiator at the rear of the coach will feature

2.29.2.1 Heavy duty stainless steel construction

2.29.2.2 Sight-glass allowing check of the coolant level. Access to the sight gauge will be provided via the radiator access door at the rear of the coach

2.29.2.3 Filler cap hinged to the filler neck and held closed by a spring

2.29.2.4 Spring-loaded push-button type valve to release pressure or vacuum in the cooling system

2.29.2.5 Positive locking device to prevent opening of the filler cap until pressure is released

2.29.2.6 Coolant recovery system with an electrically driven pump, controlled by two sensors in the surge tank, allowing coolant to be automatically re-circulated back into the surge tank.

2.29.2.7 Coolant will be added to the system via a filler tube accessed through the rear curbside engine compartment service door.

2.29.3 **Alarms**:

Engine alarm devices will be incorporated into the engine's electronic controls. The alarms will sound in the driver's area to warn the driver of these conditions

2.29.3.1 Hot engine

2.29.3.2 Low oil

2.29.3.3 Engine coolant low

2.29.3.4 An alarm device will be incorporated into the transmission's electronic controls to warn the driver if the transmission sump gets overheated.

2.30 ELECTRICAL SYSTEM:

2.30.1 **Starting Motor**:

A Delco-Remy, model 42MT, 24-volt starter motor will be provided. It will feature

2.30.1.1 Totally enclosed shift lever and solenoid plunger for protection from the elements

2.30.1.2 Ratchet-type clutch with POSITORK drive

2.30.1.3 Starter solenoid action which will mesh the pinion with the ring gear on the flywheel

2.30.1.4 Clutch which will not disengage during intermittent engine firing, but only when the solenoid circuit is interrupted, protecting the pinion and ring gear from damage

2.30.1.5 Remote engine-start in the engine compartment

2.30.1.6 Safety switch in the engine compartment to prevent the engine from starting during maintenance

2.30.1.7 Output sensor which will interrupt the starter circuit preventing starter engagement once the engine is running

2.30.2 **Alternator**:

Driven by the dedicated accessory drive pulley on the engine gear box, the Delco-Remy model 50 DN 24-volt, 270 amp, self-rectifying alternator will be mounted to the engine on the curbside of the coach. It will feature

2.30.2.1 Brushless, oil-cooled design

2.30.2.2 Stationary current-carrying conductors

2.30.2.3 Rotor, which will be the only moving part, mounted on two heavy duty ball bearing assemblies

2.30.2.4 Nominal output at various engine speeds will be

2.30.2.4.1 **Idle** (600 rpm) - 165 amperes.

2.30.2.4.2 **Fast idle** (950 rpm) - 240 amperes.

2.30.2.4.3 **Full,** (2,100 rpm) - 270 amperes

2.30.3 **Voltage Regulator**:

A transistor-type electronically controlled Delco-Remy series 50 VR Type 400, voltage regulator will be provided. It will

2.30.3.1 Be located behind a protective cover on the rear roadside wall of the battery compartment

2.30.3.2 Be adjustable by an externally accessible screw

2.30.3.3 Have no moving parts that may be affected by temperature or humidity

2.30.4 **Horn**:

Two dual-note horn systems will be provided, and will be electrically activated by a button at the center hub of the steering wheel or air-activated by a foot switch near the driver's footrest.

2.30.5 **Back-up Alarm**:

An ECCO smart alarm single-tone back-up warning will provide warning of reverse coach movement. It will be connected to the back-up light circuit and mounted in the engine compartment.

2.30.6 **Public Address System**:

A public address system with separate volume and tone controls, a 10-foot (3-m) microphone cable, an ON-OFF controlled microphone, an AM/FM stereo radio/CD player, a backup amplifier, and 12 speakers will be provided. The controls and microphone jack will be located on the lower left-hand area of the front instrument panel. The speakers will be mounted in the ceiling just above the sidewalls: six will be installed on each side of the coach. These ceiling-mounted speakers will be covered with perforated metal panels fastened with tamper-proof screws.

2.30.7 **External PA and Siren**:

An external public address system and siren will be installed in the coach. A speaker will be mounted on the exterior of the coach above the center of the windshield. A control box will be mounted in the driver's area. The siren will be able to produce several different siren sounds.

2.30.8 **Cruise Control**:

Cruise control will be a driver controlled, automatic speed control system with a speed sensor located in the transmission allowing the driver to set the coach at any speed between the low limit (dependant on the rear axle ratio) and the upper engine governor speed setting. Switches will be provided at the control panel below the driver's side window for easy driver access.

2.30.9 **Department Radio Systems**:

The department will supply and the contractor will install a two way radio antenna with the antenna wire to be installed in conduit. The antenna wire shall terminate at the curb side of the coach at the front guard position.

A12 volt power source with a terminal block to terminate at the corner of the right hand modesty panel and sidewall area shall be wired hot. The 2-way radio pre-wiring shall terminate at the curb side forward officer position on the side wall. 12 volt ignition switched power with a negative ground shall be provided. Maricopa sheriff will install a Motorola MCS-2 radio after delivery.

2.30.10 **Video Surveillance Equipment**:

A digital video surveillance system, KALATEL system or approved equal, will be provided and installed by the contractor. The system will consist of (1) digital recorder, (3) color cameras with low light capabilities, (1) Color Duplex Multiplexer which will allow viewing of all 3 cameras at one time, and (1) LCD flat panel Monitor. To be factory installed with technical support (if needed). All required Camera and power Cables, along with Connectors. Digital recorder & Multiplexer all to be installed on the curbside, forward side of the front partition location for easy access to the front guard seat location. The LCD flat screen color monitor shall be mounted on the curbside forward officer modesty panel. Cameras to be mounted at the following locations:
1 camera mounted on front, center facing rearward, 2 cameras just behind the second partition, (1) on the curbside facing rear, and (1) on the roadside facing rear

2.30.11 **Driver/Passenger Interior Lighting**:

Twenty-four-volt interior lighting will be provided as follows:

2.30.12 **Entrance Stepwell**:

2.30.12.1 One 6-candlepower bulb in the side of the step area closest to the windshield

2.30.12.2 One 15-candlepower bulb with a polycarbonate lens in the side of the stepwell below the passenger modesty panel

2.30.12.3 One 21-candlepower bulb above the stepwell

2.30.12.4 The stepwell will be automatically illuminated whenever the entrance door is open and the stepwell light circuit switch on the driver's right-hand switch panel is in the ON position.

2.30.13 **Driver's Light**:

One 21-candlepower bulb will be mounted in a recessed ceiling fixture above the driver's seat. It will be controlled by a switch on the driver's right-hand switch panel.

2.30.14 **Instrument Panel**:
A pulse width modulation control may be used to adjust the instrument panel lighting. The control will be located on the right-hand control console, front J-box multiplexed module.

2.30.15 **Overhead Lighting**:
Fourteen incandescent lights will be installed in the ceiling of the passenger area, seven on each side. They will be covered with perforated powder-coated steel panels attached to the ceiling with tamperproof screws, and will be controlled by a switch on the driver's instrument panel.

2.30.16 **Exterior Compartment Lighting**:

The following 24-volt exterior compartment lighting will be provided:

2.30.17 **Baggage Compartments**:

A 21-candlepower bulb (6 in total) will automatically light each compartment when its door is opened. Individual switches at the baggage compartment doors (one at each door) will control the lights.

2.30.18 **Engine Compartment**:

Four 21-candlepower bulbs controlled by a switch in the engine compartment will provide illumination

2.30.19 **Exterior Lighting**:

The following 12-volt exterior lighting will be provided:

2.30.20 **Headlights**:

Four rectangular sealed-beam halogen lamps will be installed as dual units on each side at the front of the coach. Headlamps will be wired in parallel and controlled by a switch on the driver's right-hand switch panel. Outer lamps will contain high beams with control integrated into the smart turn signal lever extending from left side of the steering column just below the steering wheel. The clearance, identification, and side marker lights will be interconnected, and will be illuminated when the head-lights are ON.

2.30.21 **Automatic Daytime Running Lights**:

The headlight low beams and clearance lights will be automatically activated whenever the engine is running, the parking brake is OFF, and the headlights are OFF.

2.30.22 **Stoplights**:

Six 32-candlepower red stoplights will be located at the rear of the coach as follows:

2.30.22.1 Two round LED lenses just above the belt line

2.30.22.2 Two round LED lenses on each side inboard of the belt line corner lenses

2.30.22.3 Two high-mounted incandescent corner lenses, nominal 5.13 x 10.50 inches (130.18 x 266.70 mm) just below the drip molding line

2.30.23 **Backup Lights**:

Two 32-candlepower lamps with white lenses, wired through the gear shift selection, will be mounted, one each, on the lower left and right sides at the rear of the coach. White lenses will be nominally 4.25 by 5.13 inches (107.95 x 130.18 mm).

2.30.24 **License Plate**:

A 4-candlepower bulb will be installed in a recessed housing on the roadside of the rear of the coach. This lamp will be wired through the marker and tail light circuit. The lamp will provide light for the rear license plate.

2.30.25 **Turn Signals**:

Ten 32-candlepower amber lamps will be provided

2.30.25.1 Two corner lenses, outboard of the headlamps at the front, visible from the front and sides

2.30.25.2 Six side turn lamps: one on each side between the drive and trailing axles, one on each side between the front axle and the #1 baggage compartment, and one on the #2 baggage compartment door. The turn signal lights shall include stainless steel guards. These turn signals will also serve as marker lights

2.30.25.3 Two round LED rear lenses between the inboard and corner stop lamps

2.30.25.4 Control of the left and right signals will be integrated into the smart turn signal lever extending from the left side of the steering column just below the steering wheel. All turn signals will flash when the hazard warning switch, located at the driver's right hand switch panel is ON.

2.30.26 **Clearance, Marker, Identification, and Tail Lights**:

Clearance, marker, identification, and tail lights will be controlled by a switch on the driver's right-hand switch panel and activated with the headlights on. They will be provided as follows:

2.30.26.1 ***Clearance***

2.30.26.1.1 Two LED amber lamps at front roof corners

2.30.26.1.2 Two LED red lamps at the rear roof corners

2.30.26.1.3 Two incandescent front clearance lamps in the combination assemblies, outboard of the headlamps

2.30.26.2 ***Marker***

2.30.26.2.1 Two LED amber side marker lamps at the front roof corners

2.30.26.2.2 Two LED red side marker lamps at the rear roof corners

2.30.26.2.3 Two LED amber side marker lamps at the roof midpoint above the side window

2.30.26.2.4 Four incandescent amber side-marker lamps below the belt line, three on each side of the coach: one between the drive and trailing axles and one between the front axle and the #1 baggage compartment. These four lamps will also serve as turn signals

2.30.26.2.3 ***Identification***

2.30.26.2.3.1 Three LED amber lamps in the front roof cap

2.30.26.2.3.2 Three LED red lamps in the rear roof cap

2.30.26.2.4 ***Tail Lights***

Two round LED tail lamp assemblies, one mounted on each side at the rear of the coach, will serve as tail and stop lights. Lights will be replaceable as separate units, and will be accessible from the rear of the lamp assembly.

LED lights, compliant to FMVSS 108, will be nominally 4.81 inches long, 1.94 inches wide, and 1.25 inches high (122.17 x 49.28 x 31.75 mm). Incandescent tail lights will be nominally 5.13 inches by 10.50 inches (130.30 x 266.70 mm). All incandescent lamps will be replaceable and illuminated with 3-candlepower bulbs.

2.30.27 **Docking Lights**:

Four white docking lights will be provided:

2.30.27.1 One light mounted on each of the #1 baggage compartment doors above the rub rail and forward of the door latch

2.30.27.2 One light mounted on each of the rear service doors above the rub rail and forward of the door latch

2.30.27.3 The lights will have crossed beams and will be controlled by two switches (one for each coach side) on the driver's instrument panel.

2.30.28 **Exterior Light**:

A dome light will mounted on the exterior of the coach above the entrance door. It shall be a Weldon 50-watt sealed-beam halogen light in an aluminum housing and controlled by a switch in the driver's instrument panel.

2.30.29 **Roof Warning Lights**:

Four LED emergency warning lights will be installed on the coach roof, one at each corner. The curbside roof lights will be blue in color while the roadside roof lights will be red in color and approximately 7 inches in diameter. Two more LED emergency warning lights will be installed on the front of the coach above the headlights. The driver will control these lights from the instrument panel. When turned on the front curbside and rear curbside lights will flash in unison while the front roadside and rear roadside lights will flash in unison. A tell tale light in the dash shall be provided to indicate when the emergency lights are illuminated.

2.30.30 **Reflectors**:

Reflectors complying with Department of Transportation (DOT) safety regulations at time of manufacture will be provided as follows:

2.30.30.1

Location	***Color***	***Shape***
One on each side, front	Amber	Rectangular
One on each side, near coach mid-point	Amber	Rectangular
One on each side, rear	Red	Rectangular
One in each tail lamp assembly	Red	Rectangular

2.30.31 **Batteries**:

Two commercial SAE 8D, 12-volt, multi-plate, storage lead acid-type batteries will be provided. They will be rated at 450 minutes reserve capacity at 80^{o} F (27^{o} C) at a 25-amp rate with a 1,350-amp cold cranking capacity at 0^{o} F (-18^{o} C). The date of manufacture will be die stamped on the batteries. The batteries will have a polypropylene cover, rubber housing and carrying handle.

Batteries will be mounted side-by-side in a separate compartment, located between the #2 and #3 baggage compartments on the curbside of the coach and include a slide-out tray. The compartment will be constructed of corrosion-resistant material, using stainless steel and molded fiberglass-reinforced plastic throughout. A battery disconnect switch will be provided and located in a protected area, accessible through the battery compartment door. Color-coded cables (red - positive, black - negative, blue - 12-V) will be used in the connection, and the coach electrical system will be the negative ground.

2.30.32 **Battery Equalizer**:

An 80-amp, short-circuit proof battery equalizer will be provided to

2.30.32.1 Equalize battery voltage

2.30.32.2 Make it possible for the coach to have 12-volt power without damaging the batteries

2.30.32.3 Offer a measure of battery overcharging protection

2.30.32.4 A Sure Power battery equalizer will be provided. Its status indicator will show when it is in the process of equalizing the batteries.

2.30.33 **Circuit Breakers**:

The 12V and 24V main power distribution to the front junction box, rear junction box, evaporator motor, condenser motor and battery equalizer are protected by an automatic reset thermal circuit breaker which are located in the battery compartment.

The driver's blower motors are also protected by a 30 amp miniature automatic reset circuit breaker located in the front junction box fuse block as well as two 15 amp manual reset type circuit breakers located on the defroster unit itself.

A 12V manual reset circuit breaker is located in the front junction box. Most hard wiring in this box will be replaced by a fully integrated I/O Controls T-2 multiplex control system and data bus wiring.

Rear junction box will be relocated to the rear of the #3 baggage compartment which is sealed, with positive air pressure to keep out dust. A 12 volt power source with a 40 amp breaker shall be installed in the rear electrical junction box.

The evaporator blower, air conditioning and condenser motor circuit breakers' will be automatic reset, will be situated in the rear junction box and battery compartment.

The manual reset breaker for the driver's heater circuit will be situated in the driver's HVAC module in the dash.

The manual reset breaker for the 12-volt master circuit will be situated in the front junction box.

All junction box access panels, with the exception of the air conditioning junction box, will be held closed by quarter-turn fasteners.

Fuses will be provided for dash illumination, CB power, World Transmission Electronic Control (WTEC), mirrors, engine control module, cigarette lighter, and 12-volt power.

2.30.34 **Wiring**:

2.30.34.1 Fully Integrated Multiplexing:

All wiring between major electrical components and terminations, except battery wiring, shall have double electrical insulation, shall be waterproof, and shall meet specification requirements of SAE Recommended Practice J555 and J1128 Type SXL or GXL. All wiring harnesses manufactured for buses purchased under this contract shall be designed/manufactured specifically for the operation of all sub components installed on the buses. Absolutely no additional wires/component circuits shall be externally added to existing assembled and insulated harnesses. Harnesses shall be properly designed and sized to the bus. Battery wiring shall conform to specification requirements of SAE Standard J1127-Type SGX or SGT and SAE Recommended Practice J541. All wiring shall be properly grouped, numbered, and color-coded full length. Numbering shall be stamped every at least every three inches (3"). Installation shall permit ease of replacement. Wiring harnesses shall not contain wires of different voltages unless all wires within the harness are sized to carry the current and insulated for the highest voltage wire in the harness. Double insulation shall be maintained as close to the terminals as practicable. The requirements for double insulation shall be met by wrapping harnesses with plastic electrical tape or by sheathing all wires and harnesses with nonconductive, rigid or flexible conduit.

Grommets of elastomeric materials shall be provided at points where wiring penetrates metal structure. Wiring supports shall be nonconductive. Precautions shall be taken to avoid damage from heat, water, solvents, or chafing. Wiring length shall allow replacement of end terminals twice without pulling, stretching, or replacing the wire. Battery cables and alternator/generator output cables shall utilize AMP terminal ends or approved equal. Except for those on large wires such as battery cables, terminals shall be crimped to the wiring. Terminals shall be full ring type or interlocking and corrosion-resistant. T splices may be used when it is less than 25,000 circular mills of copper in cross-section: a mechanical clamp is used in addition to solder on the splice; the wire supports no mechanical load in the area of the splice; and the wire is supported to prevent flexing.

The requirement for double insulation will be met by wrapping harnesses with plastic electrical tape or by sheathing all wires and harnesses with non-conductive, rigid, flexible conduit, loom, or braid. At points where wiring penetrates metal structure, suitable elastomeric material will be used.
Spare wires will be provided in main harnesses for additional circuits with wires dead-ended at the front junction box, left of the driver's position. Diagnostic and trouble shooting equipment shall also be supplied for the multiplexing system.

2.31 DRIVER'S INSTRUMENTATION:

2.31.1 **Front Instrument Panel**:

The front instrument panel, angled to minimize reflections and enhance the driver's viewing, will be of one-piece construction with recessed gauges. It will be finished in a scuff resistant acrylic urethane.

Telltale lights, with bulb verification test and audible alarms where applicable, will be provided in two clusters, one on each side of the instrument panel, indicating the following conditions:

Condition	**Telltale Light**	**Telltale Color**	**Audible Alarm**
Left-Hand Cluster			
Left Directional Signal, On	Turn Arrow	Green	Click
Hot Engine	HOT ENGINE	Red	None
Alternator Not Charging, On	NOT GEN	Red	None
Engine Coolant Low	LOW WATER	Red	Buzzer
Air Pressure Low (primary air tank – drive axle)	LOW AIR	Red	Buzzer
Jacobs Engine Brake	ENGINE BRAKE	Amber	None
Battery malfunction. Equalizer not operating	BATTERY	Red	None
Check Transmission	CHECK TRANS	Amber	None
Check Engine	CHECK ENG	Amber	None
Stop Engine	STOP ENG	Red	None

Right-Hand Cluster

Parking emergency brake, ON	PARK BRAKES	Red	None
Stop lights, ON	STOP LAMPS	Amber	None
Back-up light, ON	BACK-UP LAMPS	Green	Horn
Headlight high-beam, ON	HI BEAM	Blue	None
Right directional signal, ON	Turn Arrow	Green	Click
Hazard flasher, ON	HAZARD	Red	Click
Kneeling system	KNEEL	Red	None
Anti-skid brakes	ABS	Amber	None
Entrance door open	DOOR OPEN	Red	None
Docking Lights Illuminated (Option)			
	DOCKING	Blue	None
Emergency Flashing Lights (Option)			
	EMERGENCY	Amber	None

2.31.2 **Instrument Panel Gauges**:

Recessed Dixon next generation gauges in the main instrument panel will have white letters and numbers on a black background, and an orange needle. A pulse width modulator control will regulate the intensity of the indirect illumination. The following gauges will be provided:

2.31.2.1 **Speedometer** - 3.38-inch (85.85-mm) diameter Dixson electronic data bus driven, calibrated in both miles and kilometers, reading 0 to 80 mph (0 to 120 km/h).

2.31.2.2 **Air Pressure Gauges** – Two 2.25-inch nominal diameter electronic single needle primary and secondary gauges reading 0 to 150 psi. The gauges will indicate the pressure of the front and rear service brake air tank.

2.31.2.3 **Engine Coolant Temperature Gauge** - electric 2.25-inch nominal diameter reading 100^{o} to 250^{o} F.

2.31.2.4 **Voltmeter** - nominal 2.25-inch diameter reading 18 to 36 volts.

2.31.2.5 **Fuel Level Gauge** - electric 2.25-inch nominal diameter reading Empty to Full.

2.31.2.6 **Engine Oil Pressure Gauge** - electric 2.25-inch nominal diameter reading 0 to 100 psi.

2.31.2.7 Additional features of the front instrument panel include:

2.31.2.8 **Main Cabin Temperature Control** – Carrier micromate controller, next to the oil pressure gauge on the front instrument panel.

2.31.2.9 **Wiper controls** - left and right-hand rotating, integrating wiper speed control, (variable intermittent and constant), and washer activation, located at the lower right-hand area of the front instrument panel.

2.31.2.10 **Keyed Ignition Switch** - located between the steering column and the public address controls in the lower left dash area.

2.31.2.11 **Cigarette Lighter** - located at the top left-hand area of the front dash just to the right of the left-hand switch panel.

2.31.3 **Switch Controls**:

The following switch controls, marked as to function, will be mounted on left and right-hand switch panels at the extreme positions of the instrument panel. A pulse width modulation (PWM) control will be provided to control the intensity of the indirect illumination. All switches will be labeled with white lettering on a black background.

2.31.4 **Left-Hand Switch Panel**:

2.31.4.1 Entrance door, *OPEN-CLOSE* (momentary)

2.31.4.2 Open non-designated switch

2.31.4.3 Driver's light, *ON-OFF*

2.31.4.4 Clearance and identification lights, *ON-OFF*

2.31.4.5 Headlamps, *ON-OFF* *

2.31.4.6 Four-way hazard lights, *ON-OFF*

2.31.4.7 Coach lights, *COACH-OFF-LIGHTS*

2.31.4.8 Engine brake, *ON-OFF*

2.31.4.9 Reading lights, *ON-TEST-OFF*

2.31.4.10 Emergency engine over-ride, *ON* (momentary)

2.31.4.11 Fast idle, *ON-OFF*

2.31.4.12 Cruise activation switch, *ON-OFF*

2.31.4.13 Cruise control, *SET/COAST-RESUME/ACCEL*

* ***When ON, this switch also energizes the clearance marker and identification light circuit.***

2.31.5 **Left-Hand Console**:

2.31.5.1 Kneeling system, *RECOVER-KNEEL* (momentary)

2.31.5.2 Keyed ignition switch, *ON-OFF*

2.31.5.3 Mirror heat, *ON-OFF*

2.31.5.4 HVAC controller for passenger A/C and heat selector

2.31.5.5 Driver's air-conditioning, *ON-OFF*

2.31.5.6 Passenger blower speed, *A/C-OFF-HEAT*

2.31.5.7 Driver's defroster fans, controlled by driver HVAC controller.

2.31.5.8 Remote left and right exterior mirror joystick control

2.31.5.9 12-volt DC power source and CB plug-in (cigarette lighter) in rear of front junction box cover panel (coach interior)

2.31.5.10 Transmission shift pad

2.31.5.11 Emergency-parking brake control

2.31.6 **Right-Hand Control Console**:

The following switches will be provided in the left-hand side control console below the driver's side window:

2.31.6.1 Pulse width modulation control for indirect *GAUGE ILLUMINATION(Right hand side)*

2.31.6.2 Pulse Width Modulated (PWM) control for *DASH ILLUMINATION*

2.31.7 **Engine Compartment Instrumentation**:

The following controls and gauges will be provided in the upper left-hand area of the engine compartment:

2.31.7.1 Service Light Switch - *ON-OFF*

2.31.7.2 Rear Engine Control Switch - *Front Start-Off-Rear Start* (momentary one-way)

2.31.7.3 Engine Run Switch - *Engine Run-Engine Off*

2.31.7.4 Coolant Recovery Switch (momentary)

2.31.7.5 Alternator Telltale Light – *Generator*

2.31.7.6 Additionally, a fan-clutch test switch will be provided above the engine in the right area of the radiator compartment. It will be accessible through the open radiator compartment door.

2.32 ENGINE:

The engine and transmission will be mounted longitudinally at the rear of the coach on a cradle attached to dual support rails, incorporating neoprene engine mounts. This will make it easier to remove the power plant. In addition to service doors, removable access panels will be provided in the rear interior of the coach providing service accessibility for normal maintenance procedures. The interior access panels will be fastened with safety tamper-proof screws in lieu of Phillips screws. A Jacob engine brake shall be provided with driver control.

2.33 POWER PLANT:

Detroit Diesel 4-cycle Series 60 DDEC V EGR 2004 engine will be provided with the following general specifications:

2.33.1 **Engine Rating:** 435 hp (321 kW)

2.33.2 **Displacement:** 775 in^3, (12.7L)

2.33.3 **Bore:** 5.12 inches (130.05 mm)

2.33.4 **Stroke:** 6.30 inches (160.02 mm)

2.33.5 **Compression Ratio:** 16.5:1

2.33.6 **Operating Range:** 1,200 to 2,100 rpm

2.33.7 **Exhaust**:

The exhaust outlet will be located at the rear roadside corner of the coach, below the bumper. Slip joint couplings will be used between the engine exhaust outlet and the muffler piping. The exhaust system shall be aluminized steel.

2.33.8 **Lubrication**:

A large, gear driven pump with a full-flow oil filter will lubricate the engine and air compressor. The engine will also feature

2.33.8.1 Pressurized lubrication to all bearing surfaces

2.33.8.2 By-pass valves for the oil filter and cooler to assure lubrication if either should become restricted

2.33.8.3 Oil lubrication for the underside of the piston

2.33.8.4 Magnetic oil pan drain plug

2.33.9 **Cylinders**:

The engine will have six cylinders and will feature

2.33.9.1 Iron alloy cast cylinder block and heads

2.33.9.2 Wet-type, replaceable, cylinder liners

2.33.9.3 Two exhaust valves per cylinder for efficiency and extended repair intervals

2.33.9.4 Replaceable valve seats

2.33.10 **Additional features**:

Additional features will include:

2.33.10.1 Main bearing surfaces measuring 4.92 inches in diameter x 1.55 inches (124.97 x 39.37 mm)

2.33.10.2 Connecting rod bearing journals measuring 3.35 inches (85.09 mm) in diameter by 1.70 inches (43.18 mm)

2.33.10.3 Statically and dynamically balanced crankshaft

2.33.10.4 Ground and hardened camshaft with roller-type Cam followers

2.33.10.5 Two-piece cross-head pistons including a fire ring, compression ring and oil control ring with expander

2.33.10.6 Steel-braided Teflon-lined fuel, water, oil, power steering, and air hoses in the engine compartment

2.33.10.7 Limiting speed electronic governor which will control maximum engine speed within the manufacturers specified limitations

2.33.10.8 Engine fast idle system with control at the driver's position. The parking brake must be applied and the coach must be in neutral before the fast idle will engage at a nominal speed of 950 rpm

2.33.10.9 Half engine idle mode for cold start conditions where the engine idles on three cylinders to reduce the amount of idle white smoke exhaust. The half engine idle mode will automatically disable when the engine reaches a factory set operating temperature measured at the intake manifold

2.33.10.10 Williams electronic accelerator

2.33.10.11 An extended engine warranty for 5 years/500,000 miles

2.34 FUEL SYSTEM:

2.34.1 **Fuel Tank and Filter**

The welded aluminum fuel tank will have a total capacity of 192 US gallons (726 L), but will hold a maximum of 182 US gallons (688 L) of fuel. The remaining 10 US gallons (38 L) will be filled with air. The fuel tank and filler will be located between the #2 baggage compartment and the battery compartment on the curb-side of the coach. It will feature

2.34.1.1 Brass fuel tank drain plug at the bottom of the tank

2.34.1.2 Anti-spill device and whistle to indicate when the tank is filled

2.34.1.3 Dual spin-on fuel filters will be provided for the engine. A manual shut-off valve will be provided between the fuel tank and the filters to prevent siphoning of fuel when the filters are being serviced.

2.34.2 **Air Intake**

There will be a high mount engine air intake in an area minimizing turbulence and road splash, above and to the left of the radiator and below the exterior corner roof panel. Air will enter a catch basin pre-cleaner to separate moisture and heavy contaminants prior to entering a horizontal dry-type air cleaner. The filter will be accessible through a service door at the rear roadside of the coach just above the bumper.

2.35 STEERING:

The hydraulic power steering will feature

2.35.1 Vane-type pump, flange-mounted and gear-driven by the engine, to pressurize the fluid supply

2.35.2 Reservoir in the engine compartment equipped with a fluid level sight gauge and a lubrication information nameplate

2.35.3 Integral steering box at the base of the steering column

2.35.4 Solid-type drag link with non-serviceable socket assemblies on link ends

2.35.5 Ross series TAS85 integral steering unit incorporating the control valve, power cylinder, and steering mechanism into a single package

2.35.6 Steel-braided Teflon-lined power steering hoses in the engine compartment

2.35.7 Tilt and telescopic steering column

2.35.8 Universal joints in the steering shaft

2.35.9 Deep dish nominal 19.5-inch (495.3 mm) diameter two-spoke leather-wrapped molded polypropylene steering wheel with puller holes and an MCI logo on the horn cap

2.36 SUSPENSION:

Air suspension will be provided at each axle to absorb vertical loads on axles and maintain consistent coach height within the gross vehicle weight limitations.

2.36.1 **Front Axle Suspension** - will be equipped with two rolling lobe type air spring bellows, nominal 9.5 inches (241.3 mm) in diameter, and one height control valve.

2.36.2 **Drive Axle Suspension** - will be equipped with four rolling lobe type air spring bellows, nominal 9.5 inches (241.3 mm) in diameter, and two height control valves.

2.36.3 **Trailing Axle Suspension** - will be equipped with two rolling lobe-type air spring bellows, nominal 9.5 inches in diameter (241.3 mm).

2.36.4 **Suspension/Accessory Air Reservoir –** will have a capacity of 815 in^3 (13,355 cm^3).

2.36.5 Additional suspension features will include

2.36.6 Damping feature in the height control valves preventing rapid cycling during axle travel on slight road irregularities

2.36.7 Balanced pressure in trailing and drive axle air springs

2.36.8 Manually discharged air pressure, for a tire change, by actuating the valve located in the rear curbside engine service compartment.

2.36.9 Shock absorber support for the trailing axle should the coach be lifted on a conventional hoist

2.36.10 **Radius Rods**:

The position of the front, drive, and trailing axles will be maintained by four heavy-duty rubber bushing mounted radius rods at each position. There will be a transverse stabilizing rod at the front axle to assure correct positioning of the axle at all times. Silent block CLEVITE bushings will be used in the suspension.

2.36.11 **Shock Absorbers**:

Double acting telescopic shock absorbers with polyurethane bushings will be provided as follows:

2.36.11.1 Two at each side of the front axle

2.36.11.2 Two at each side of the drive axle

2.36.11.3 One on each side of the trailing axle

2.36.11.4 Shock absorbers will be interchangeable from side to side on the same axle only.

2.36.12 **Kneeling Feature**:

An air-operated, electrically controlled, kneeling system will be provided. It will feature

2.36.12.1 Reduction of first step entrance height to 12.5 inches (317.5 mm) nominal

2.36.12.2 Driver-activated momentary control in the left-hand switch panel of the front instrument panel

2.36.12.3 Remote external momentary control in a side wall pocket by the entrance door just below the belt line

2.36.12.4 Automatically locked-out controls when the entrance door is open or the parking brake is not engaged

2.36.12.5 Recovery, within 4 seconds nominal of activation, to a height permitting the coach to resume service

2.36.12.6 Overrule control in #1 roadside baggage compartment

2.36.12.7 Telltale light, KNEEL, in the right-hand telltale cluster of the front instrument panel to indicate when the system is in use

2.36.12.8 Amber light to the rear of the entrance door and above the belt line, which will flash and beep when the kneeling system is in operation

2.36.12.9 Kneeling bus decal to the rear of the entrance door and above the belt line next to the amber light

2.37 TRANSMISSION:

An Allison model B500 WTEC III automatic electronically controlled transmission, without retarder, will be provided. It will have six forward speeds and one reverse speed. It will feature

2.37.1 Electronic controls, in an enclosed compartment in the #3 roadside baggage compartment, linked to the engine electronic module

2.37.2 Shift pad to the left of the driver

2.37.3 Helical pinion gear sets

2.37.4 Internal oil filters

2.37.5 Dipstick tube for adding lubricant, accessible through the roadside engine service door

2.37.6 Allison TC 541 torque converter

2.37.7 Lubrication information nameplate

2.37.8 TRANSYND synthetic transmission fluid

2.37.9 Gear ratios will be as follows:

Gear	**Transmission Ratio**:
1st	3.51:1
2nd	1.91:1
3rd	1.43:1
4th	1.00:1
5th	.74:1
6th	.64:1
Reverse	4.80:1

A limiting speed electronic governor controlling the maximum engine speed will be calibrated within the manufacturer's specified limitations.

An Allison transmission extended warranty will be provided that covers it for 5 years with 100% parts and labor.

2.38 DRIVE SHAFT:

The drive shaft will be a nominal 3-inch (76-mm) tube, mounted in heavy-duty MERITOR universal joints retained in MERITOR half-round yokes by end cap saddles. A guard will prevent the shaft from striking the floor or the ground in the event of a tube or joint failure.

2.39 WHEELS AND TIRES:

Nine ACCURIDE #28476 interchangeable steel wheels will be provided. The wheels will be hub-mounted, and will feature

2.39.1 **Wheel Size:** 22.50 x 9.00 inches

2.39.2 **Hand Holes:** 5

2.39.3 **Maximum Load:** 9,000 lbs at 120 psi

2.39.4 **Individual Wheel Weight:** 83 lbs

2.39.5 **Total Wheel Weight:** 747 lbs

The wheels will be designed to accept bias ply or radial tires, including steel belted radials. Wheels will also incorporate flow through tire valve caps and afford appropriate valve length.

Nine (9) MICHELIN XZA-1 tires will be supplied and must be rated at a minimum capacity of 9,000 lbs at 120 psi and at a speed not to exceed 72 mph.

2.40 HEATING, VENTILATION, AND AIR CONDITIONING: (HVAC)

Note: the standard air conditioning system is charged with R134A refrigerant.

2.40.1 **The Main Under-floor Unit -** located behind the #2 baggage compartment, will contain ducting, filters, heater core, evaporator and centrifugal type blowers modulated by controls on the driver's instrument panel. Fresh air introduced at the front of the coach and into the coach heating and cooling system will provide up to 10% of the recirculated air. Recirculated air will be drawn back into the plenum through the slotted sides in the full floor step up area and through a series of slots at the rear of the coach. All air will pass through a replaceable filter, through the evaporator and heater cores, then will be discharged through ducts and air outlets along the side windows. Air will also be exhausted through openings in the entrance door area and at the rear. The interior of the coach will be slightly pressurized to reduce the ingression of dusty external air, when the blowers are on.

2.40.2 **The front dash unit (driver's HVAC module) -** will consist of the heater and evaporator core, dual three-speed blowers, an internal fresh air damper and include the following features:

2.40.2.1 Fresh air from the front of the coach directed into the bottom of the module

2.40.2.2 Driver's control to allow switching from outside air to recirculated air

2.40.2.3 Recirculated air will be drawn through a louvered opening on the right hand face of the dash across the evaporator then on to the blowers and distribution system

2.40.2.4 Driver's vent on the right side of the instrument panel

2.40.2.5 Defroster outlets at the base of the windshields

2.40.2.6 Defroster outlet for the driver's side window

2.40.2.7 Removable access panel located to the right of the driver's position between the front instrument panel and the entrance door

2.40.2.8 Gasper-type adjustable outlets at the left- and right-most positions under the dash to provide outside ram air ventilation to the driver's area

2.40.2.9 The following controls will be provided in the front dash unit:

2.40.2.10 Carrier HVAC controller switch to control the under-floor system

2.40.2.11 Digital temperature selector and thermostat control provides a 60 to 80° F (16 to 26° C) adjustment range of interior temperature settings for the main heating system

2.40.2.12 Controller which will maintain single point temperature setting within ± 5° F (± 2.8° C)

2.40.2.13 Four-position, OFF-LOW-MED-HI, switch will control the front dash blowers for defrosting, heating, and air conditioning

2.40.2.14 Driver's water heater valve controlled by a push/pull valve to the left of the driver to regulate the flow of water to the driver's heater-defroster core

2.40.2.15 Manual gate valves in the engine compartment to shut off the flow of all water to heater cores

The coach interior temperature will be maintained by controlling the flow of water into the heater core. A sensing probe in the return air duct and an electric air-operated water valve will control the temperature of the water flow. The valve will open and close automatically on demand of the sensing probe to satisfy the temperature setting selected by the driver. The engine water pump will maintain water flow to the heater core.

2.40.3 **Heating and Air Conditioning Systems**:

A six-cylinder Carrier 05G compressor will be mounted in the engine compartment, driven directly from the main power plant through dual Kevlar-reinforced belts with tension maintained by a lubricated stainless steel turnbuckle tensioner. The compressor, equipped with two electrical unloaders, will load and unload automatically based on pressure to prevent coil freeze-up.

An electro-magnetic clutch and two unloader solenoids will be provided at the compressor to unload two cylinders at a time as air conditioning requirements decrease. A maximum of four cylinders will be unloaded with heat on. The clutch will be engaged via the air conditioning switch located at the driver's left side control console.

The condenser fan assemblies, mounted on the left side of the coach, rear of the #2 baggage compartment will incorporate

2.40.3.1 Twin 2 horsepower (1.5 kW), 24-volt corrosion resistant motors

2.40.3.2 Fan motors fitted with shrouded axial fans connected in series (low-speed) or parallel (high-speed) and operational only when the passenger air conditioning switch is ON

2.40.3.3 Nominal blower output of 6,870 ft^3/ minute (194.5 m^3) at high speed and 3,380 ft^3 / minute (95.7 m^3) at low speed

2.40.3.4 A shield on the air conditioner exhaust under the condenser compartment

2.40.3.5 The condenser coil will feature

2.40.3.6 Copper tubes and fins

2.40.3.7 Nominal fin surface area of 1,257 in^2 (8,110 cm^2)

2.40.3.8 The condenser coil, receiver tank, filter-dryer and other air conditioning components will be mounted in the same compartment.

2.40.4 **System Capacities**:

The main under-floor evaporator blowers will be centrifugal types, driven by a two-speed twin shaft 1.5 horsepower (1.1 kW), 24-volt motor. The evaporator fin surface area will be 700 in^2 (4,516 cm^2). The main heater fin surface will be 690 in^2 (4,451 cm^2).

Nominal evaporator/heater blower output will be

2.40.4.1

Speed	**Output in ft^3/min. (m^3/min.)**
High	2,200 (62.3)
Low	1,690 (47.9)

The dual front dash blowers will be centrifugal types, driven by individual 24-volt motors. The defrost speed switch allows for nominal

2.40.4.2

Speed	**Output in ft^3/min. (m^3/min.)**
High	600 (17)
Medium	400 (11)
Low	200 (5.6)

2.40.4.3 Designed nominal heater capacities, based on 180° F (82° C) water-glycol solution and 70° F (21° C) air coach temperature, will be

2.40.4.4 156,000 BTU/hr (45.7 kW/hr) for the under-floor system

2.40.4.5 36,000 BTU/hr (10.5 kW/hr) for the front dash (driver's) system.

2.40.5 **Interior Climate Control**:

The interior climate for all areas of the passenger compartment will be automatically maintained as follows:

2.40.5.1 **Ambient Temperature in °F (°C) Interior Coach Temperature in °F (°C)**

-10 to +10 (-23 to -12)	at least 60 (15.5)*
10 to 95 (-12 to 35)	65 to 85 (18 to 29)
95 to 110 (35 to 43)	differential of 20 (11)

* with no passenger load

Note: performance characteristics are based on using R134A refrigerant in the system.

2.41 TRAINING AND MANUALS:

Manufacturer shall provide two days of training for coach operation. Coach shall be supplied with the following quantities of manuals:

2.41.1 Two (2) operators manuals

2.41.2 Two (2) parts manuals

2.41.3 Two (2) sets of maintenance manuals shall include all components, overhaul and rebuild, electrical diagrams, drive-ability, emissions and etc. Manuals can be book form or CD.

2.42 GENERAL INFORMATION:

Bus shall meet all AZ State and Federal regulations. Unit shall have been completely inspected, road tested and ready for full operation when delivered. All manuals shall be delivered on or before the deliver date of the bus.

Vendor shall supply the following items.

2.42.1 Spare bulb and belt kit. Please specify each component and quantity to be supplied.

2.42.2 Ten SCHLAGE lock keys

2.42.3 Five (5) Ignition keys

2.43 TAX:

No tax shall be levied against labor. Bid pricing to include all labor, overhead tools and equipment used, profit, and any taxes that may be levied. It is the responsibility of the Contractor to determine any and all taxes and include the same in bid price.

2.44 DELIVERY:

Delivery is required F.O.B. Destination, freight pre-paid within (____) **(to be specified by bidder)** days of receipt of Purchase Order, to any delivery location within Maricopa County as specified by the County. Contractor shall indicate on Pricing Documentation (Attachment A) any additional freight or handling charges that would be associated with special shipping and/or handling delivery.
miles.
It shall be the Contractor's responsibility to meet the County's delivery requirements, as called for in the Technical Specifications. Maricopa County reserves the right to obtain services on the open market in the event the Contractor fails to make delivery and any price differential will be charged against the Contractor.

2.45 EXEDITED DELIVERY:

If the Using Agency determines that rush shipping or other alternate shipping is required, it shall notify the Contractor. The Contractor shall determine any additional costs associated with such delivery terms and communicate that cost to the Using Agency via fax or other reasonable means.

The Using Agency shall not advise the Contractor to proceed with shipment until acceptable terms are negotiated and a purchase order is issued. Upon determining that the additional costs are reasonable and proper, the Using Agency shall advise the Contractor to proceed.

Upon receipt of material and invoicing, the Using Agency shall ensure that any additional charges are in compliance with and do not exceed those costs stated in the Contract. The Using Agency shall retain all documents related to these costs within the agency purchase order file, for audit purposes.

2.46 SHIPPING:

Bid prices shall be made F.O.B. destination freight pre-paid to the Using Agency within Maricopa County. The Contractor shall retain title and control of all goods until they are delivered and the contract coverage has been completed. All claims for visible or concealed damage shall be filed by the Contractor. The County will notify the Contractor of any damaged goods and shall assist the Contractor in arranging for inspection.

2.47 TESTING:

Unless otherwise specified, materials purchased will be inspected by the Using Agency to ensure the Materials meet the quality and quantity requirements of the Specifications. When deemed necessary by the County, samples of the materials may be taken at random from stock received for submission to a commercial laboratory or other appropriate agency for analysis and tests as to whether the materials conform in all respects to the Specifications. In cases where commercial laboratory reports indicate that the materials do not meet the Specifications, the expense of such analysis is to be borne by the Contractor.

2.48 WARRANTY:

The minimum warranty period shall be twelve (12) months for both parts and labor. Warranty repair and/or replacement will be performed at no additional charge to Maricopa County. All warranty periods shall begin upon acceptance by the Using Agency.

2.49 BRAND NAME:

Bids on brands other than those listed are subject to approval based on evaluation. Maricopa County reserves the right to request samples to determine quality and acceptability of products bid. In some cases brands have been listed to define quality of products desired and is not intended t be restrictive or limit competition. Products substantially equivalent to those designated shall qualify for consideration.

2.50 FACTORY AUTHORIZED SERVICE AVAILABILITY

The Contractor shall have and maintain a local factory authorized service station within the Phoenix metropolitan area. The station shall be capable of supplying and installing component parts, and troubleshooting, repairing and maintaining the Materials. Minimum service hours shall be from 8:00 A.M. to 5:00 P.M., Monday through Friday.

2.51 OPERATING MANUALS:

Upon delivery, Contractor shall provide comprehensive operational manuals, Materials service manuals, and schematic diagrams, if required by the Using Agency.

2.52 TECHNICAL AND DESCRIPTIVE SALES LITERATURE:

Contractor shall provide copies of its sales literature and brochures, and copies of any manufacturer's technical and descriptive literature regarding the material it proposes to provide. Literature shall include sufficient in detail to allow full and fair evaluation of the offer submitted, and must be included with the bid. Failure to include this information may result in the bid being rejected.

2.53 CONTRACTOR REVIEW OF DOCUMENTS:

Contractor shall review its bid submission to assure the following requirements are met.

2.53.1 One (1) original and one (1) copy of all submissions is MANDATORY

2.53.2 Pricing pages, MANDATORY (Attachment A)

2.53.3 Agreement page, MANDATORY (Attachment B)

2.53.4 References (Attachment C)

2.53.5 Vendor Information, MANDATORY (Attachment D)

2.53.6 Copies of Catalogs/Pricing Documents (if required)

2.53.7 Literature, Technical and Descriptive, MANDATORY

2.53.8 Bid Bond, MANDATORY (see section

2.54 MODEL YEAR EQUIPMENT:

The County will only accept bids offering current model year equipment/product.

2.55 ORDER CUTOFF INFORMATION:

Contractors submitting proposals (bids) shall advise the County of all known order cutoff dates for the equipment/product specified in the Invitation for Bids at the time of submission. Notification of any subsequent cutoff date(s) (learned after submission) shall also be the responsibility of the Contractor. The Contractor shall advise the County of **subsequent cutoff dates** by notifying the Procurement Consultant, **in writing**, of this new information.

2.56 FACILITIES:

During the course of this Agreement, the County shall provide the Contractor's personnel with adequate workspace for consultants and such other related facilities as may be required by Contractor to carry out its obligation enumerated herein.

2.57 SHIPPING DOCUMENTS:

A packing list or other suitable shipping document shall accompany each shipment and shall include the following:

(1) Name and address of the Contractor;

(2) Name and address of the County Agency;

(3) County purchase order number;

(4) A description of material shipped, including item number, quantity, number of containers and package number, if applicable.

2.58 ACCEPTANCE:

Once the Materials have been delivered, the Using Agency shall have a reasonable opportunity to inspect them. The Using Agency shall have seven (7) days to perform its acceptance testing and inspection of the Materials, after which time the Materials shall be deemed accepted unless the Using Agency rejects the Materials.

2.59 PRODUCT DISCONTINUANCE:

In the event that a manufacturer discontinues a product and/or model, the County may allow the successful Contractor to provide a substitute for the discontinued item or may cancel the Contract. If the Contractor requests permission to substitute a new product or model, it shall provide the following to the County:

2.59.1 Documentation from the manufacturer that the product of model has been discontinued.

2.59.2 Documentation that names the replacement product or model.

2.59.3 Documentation that provides clear and convincing evidence that the replacement meets or exceeds all Specifications required by the original Invitation for Bids.

2.59.4 Documentation that provides clear and convincing evidence that the replacement will be compatible with all the functions or uses of the discontinued product or model.

2.59.5 Documentation confirming that the price for the replacement is the same as or less that the discontinued product or model.

Product discontinuance applies only to those items specifically listed on any resultant contract. This will not apply to catalog items not specifically listed on any resultant contract.

2.60 MATERIALS MAINTENANCE:

The Contractor shall provide for maintenance of Materials supplied under this Contract upon installation of equipment

3.0 **SPECIAL TERMS & CONDITIONS:**

3.1 CONTRACT LENGTH:

This Invitation for Bids is for awarding a firm, fixed price purchasing contract to cover a one ( ) year period.

3.2 EVALUATION CRITERIA:

The evaluation of this Bid will be based on, but not limited to, the following:

3.2.1 Compliance with specifications

3.2.2 Price

3.2.3 Determination of responsibility

The County reserves the right to award in whole or in part, by item or group of items, by section or geographic area, or make multiple awards, where such action serves the County's best interest.

3.3 UNCONDITIONAL TERMINATION FOR CONVENIENCE:

Maricopa County may terminate the resultant Contract for convenience by providing sixty (60) calendar days advance notice to the Contractor.

3.4 ORDERING AUTHORITY:

Contractors should understand that any request for purchase of materials or services shall be accompanied by a valid purchase order, issued by Materials Management. No other request is valid.

3.5 INDEMNIFICATION AND INSURANCE:

3.5.1 INDEMNIFICATION.

To the fullest extent permitted by law, CONTRACTOR shall defend, indemnify, and hold harmless **COUNTY**, its agents, representatives, officers, directors, officials, and employees from and against all claims, damages, losses and expenses, including, but not limited to, attorney fees, court costs, expert witness fees, and the cost of appellate proceedings, relating to, arising out of, or alleged to have resulted from the acts, errors, omissions or mistakes relating to the performance of this Contract. **CONTRACTOR'S** duty to defend, indemnify and hold harmless **COUNTY**, its agents, representatives, officers, directors, officials, and employees shall arise in connection with any claim, damage, loss or expense that is attributable to bodily injury, sickness, disease, death, or injury to, impairment, or destruction of property, including loss of use resulting therefrom, caused by any acts, errors, omissions or mistakes in the performance of this Contract including any person for whose acts, errors, omissions or mistakes **CONTRACTOR** may be legally liable.

The amount and type of insurance coverage requirements set forth herein will in no way be construed as limiting the scope of the indemnity in this paragraph.

3.5.2 Abrogation of Arizona Revised Statutes Section 34-226.

In the event that A.R.S. § 34-226 shall be repealed or held unconstitutional or otherwise invalid by a court of competent jurisdiction, then to the fullest extent permitted by law, **CONTRACTOR** shall defend, indemnify and hold harmless **COUNTY**, its agents, representatives, officers, directors, officials and employees from and against all claims, damages, losses and expenses (including but not limited to attorney fees, court costs, and the cost of appellate proceedings), relating to, arising out of, or resulting from **CONTRACTOR'S** work or services. **CONTRACTOR'S** duty to defend, indemnify and hold harmless, **COUNTY**, its agents, representatives, officers, directors, officials and employees shall arise in connection with any claim, damage, loss or expense that is attributable to bodily injury, sickness, disease, death, injury to, impairment or destruction of property including loss of use resulting therefrom, caused in whole or in part by any act or omission of **CONTRACTOR**, anyone **CONTRACTOR** directly or indirectly employs or anyone for whose acts **CONTRACTOR** may be liable, regardless of whether it is caused in part by a party indemnified hereunder, including **COUNTY.**

The scope of this indemnification does not extend to the sole negligence of **COUNTY**.

3.5.3 Insurance Requirements.

CONTRACTOR, at **CONTRACTOR'S** own expense, shall purchase and maintain the herein stipulated minimum insurance from a company or companies duly licensed by the State of Arizona and possessing a current A.M. Best, Inc. rating of B++6. In lieu of State of Arizona licensing, the stipulated insurance may be purchased from a company or companies, which are authorized to do business in the State of Arizona, provided that said insurance companies meet the approval of **COUNTY**. The form of any insurance policies and forms must be acceptable to **COUNTY**.

All insurance required herein shall be maintained in full force and effect until all work or service required to be performed under the terms of the Contract is satisfactorily completed and formally accepted. Failure to do so may, at the sole discretion of **COUNTY**, constitute a material breach of this Contract.

CONTRACTOR'S insurance shall be primary insurance as respects **COUNTY**, and any insurance or self-insurance maintained by **COUNTY** shall not contribute to it.

Any failure to comply with the claim reporting provisions of the insurance policies or any breach of an insurance policy warranty shall not affect coverage afforded under the insurance policies to protect **COUNTY**.

The insurance policies may provide coverage, which contains deductibles or self-insured retentions. Such deductible and/or self-insured retentions shall not be applicable with respect to the coverage provided to **COUNTY** under such policies. **CONTRACTOR** shall be solely responsible for the deductible and/or self-insured retention and **COUNTY**, at its option, may require **CONTRACTOR** to secure payment of such deductibles or self-insured retentions by a surety bond or an irrevocable and unconditional letter of credit.

COUNTY reserves the right to request and to receive, within 10 working days, certified copies of any or all of the herein required insurance policies and/or endorsements. **COUNTY** shall not be obligated, however, to review such policies and/or endorsements or to advise **CONTRACTOR** of any deficiencies in such policies and endorsements, and such receipt shall not relieve **CONTRACTOR** from, or be deemed a waiver of **COUNTY'S** right to insist on strict fulfillment of **CONTRACTOR'S** obligations under this Contract.

The insurance policies required by this Contract, except Workers' Compensation, shall name **COUNTY**, its agents, representatives, officers, directors, officials and employees as Additional Insureds.

The policies required hereunder, except Workers' Compensation, shall contain a waiver of transfer of rights of recovery (subrogation) against **COUNTY**, its agents, representatives, officers, directors, officials and employees for any claims arising out of **CONTRACTOR'S** work or service.

3.5.3.1 Commercial General Liability. **CONTRACTOR** shall maintain Commercial General Liability Insurance (CGL) and, if necessary, Commercial Umbrella Insurance with a limit of not less than $1,000,000 for each occurrence with a $2,000,000 Products/Completed Operations Aggregate and a $2,000,000 General Aggregate Limit.

The policy shall include coverage for bodily injury, broad form property damage, personal injury, products and completed operations and blanket contractual coverage including, but not limited to, the liability assumed under the indemnification provisions of this Contract which coverage will be at least as broad as Insurance Service Office, Inc. Policy Form CG 00 01 10 93 or any replacements thereof. There shall be no endorsement or modification of the CGL limiting the scope of coverage for liability arising from explosion, collapse, or underground property damage.

The policy shall contain a severability of interest provision, and shall not contain a sunset provision or commutation clause, or any provision, which would serve to limit third party action over claims.

The CGL and the commercial umbrella coverage, if any, additional insured endorsement shall be at least as broad as the Insurance Service Office, Inc.'s Additional Insured, Form CG 20 10 10 01, and shall include coverage for **CONTRACTOR'S** operations and products.

3.5.3.2 Automobile Liability. **CONTRACTOR** shall maintain Automobile Liability Insurance and, if necessary, Commercial Umbrella Insurance with a combined single limit for bodily injury and property damage of no less than $1,000,000, each occurrence, with respect to **CONTRACTOR'S** vehicles (including owned, hired, non-owned), assigned to or used in the performance of this Contract. If hazardous substances, materials, or wastes are to be transported, MCS 90 endorsement shall be included and $5,000,000 per accident limits for bodily injury and property damage shall apply.

3.5.3.3 Workers' Compensation. **CONTRACTOR** shall carry Workers' Compensation insurance to cover obligations imposed by federal and state statutes having jurisdiction of **CONTRACTOR'S** employees engaged in the performance of the work or services, as well as Employer's Liability insurance of not less than $100,000 for each accident, $100,000 disease for each employee, and $500,000 disease policy limit.

CONTRACTOR waives all rights against **COUNTY** and its agents, officers, directors and employees for recovery of damages to the extent these damages are covered by the Workers' Compensation and Employer's Liability or commercial umbrella liability insurance obtained by **CONTRACTOR** pursuant to this agreement.

In case any work is subcontracted, **CONTRACTOR** will require the Subcontractor to provide Workers' Compensation and Employer's Liability insurance to at least the same extent as required of **CONTRACTOR**.

3.5.4 Certificates of Insurance.

3.5.4.1 Prior to commencing work or services under this Contract, Contractor shall furnish the County with certificates of insurance, or formal endorsements as required by the Contract in the form provided by the County, issued by Contractor's insurer(s), as evidence that policies providing the required coverage, conditions and limits required by this Contract are in full force and effect. Such certificates shall identify this contract number and title.

In the event any insurance policy(ies) required by this contract is(are) written on a "claims made" basis, coverage shall extend for two years past completion and acceptance of **CONTRACTOR'S** work or services and as evidenced by annual Certificates of Insurance.

If a policy does expire during the life of the Contract, a renewal certificate must be sent to **COUNTY** fifteen (15) days prior to the expiration date.

3.5.4.2 Cancellation and Expiration Notice.

Insurance required herein shall not be permitted to expire, be canceled, or materially changed without thirty (30) days prior written notice to the County.

3.6 BID BOND:

A Bid Bond in an amount equal to 10% of the contract value, in the form of a certified or cashier's check, shall accompany the bid. Check to be made payable to the Maricopa County Board of Supervisors. Personal or company checks are not acceptable. **Bid Bonds shall be identified with Bid Serial Number, title and return address.**

3.7 FAILURE TO EXECUTE:

Upon failure of the successful Contractor to execute the contract, the bid security shall be forfeited to the County, not as a penalty but as liquidated damages to offset the cost to the County of conducting another invitation for bids. Contractor acknowledges that the County's loss as a result of the Contractor's failure to execute a contract would be difficult to determine, and that the value of the bid security is a fair and reasonable estimate of what those damages might be.

3.8 REQUIREMENT OF CONTRACT BOND:

Each bond shall be executed by a surety company or companies holding a certificate of authority to transact surety business in the State of Arizona issued by the Director of the Department of Insurance. The bonds shall not be executed by an individual surety or sureties. The bonds shall be made payable and acceptable to the Contracting Agency. The bonds shall be written or countersigned by an authorized representative of the surety who is either a resident of the State of Arizona or whose principal office is maintained in this state, as by law required, and the bonds shall have attached thereto a certified copy of the Power of Attorney of the signing official. In addition, said company or companies shall be rated "Best-A" or better as required by the Contracting Agency, as currently listed in the most recent Best Key Rating Guide, published by the A.M. Best Company.

3.9 INQUIRIES AND NOTICES:

All inquiries concerning information herein shall be addressed to:

MARICOPA COUNTY
DEPARTMENT OF MATERIALS MANAGEMENT
ATTN: CONTRACT ADMINISTRATION
320 W. LINCOLN ST.
PHOENIX, AZ 85003

Administrative telephone inquiries shall be addressed to:

WALT PRICE, PROCUREMENT CONSULTANT, 602-506-3454
(wprice@mail.maricopa.gov)

Technical telephone inquiries shall be addressed to:

LES GLOVER, EQUIPMENT SERVICES, 602-506-4667
(les.glover@MAIL.MARICOPA.GOV)

Inquiries may be submitted by telephone but must be followed up in writing. No oral communication is binding on Maricopa County.

3.10 PRE-BID CONFERENCE:

THERE WILL BE A MANDATORY PRE-BID CONFERENCE ON OCTOBER 5, 2004, 9:00 A.M. AT THE EQUIPMENT SERVICES DEPARTMENT, 3325 W. DURANGO ST., PHOENIX, AZ 85003

3.11 SUBMISSION PRICE CLARITY:

For reasons of clarity all submissions of pricing (Attachment A) shall be priced in the same unit (size, volume, quantity, weight, etc.) as the bid specifications request. Submissions (bids) failing to comply with this requirement may be declared non-responsive.

3.12 INSTRUCTIONS FOR PREPARING AND SUBMITTING BIDS:

Bidders are to provide one (1) original "hard copy" (labeled) and one (1) extra copy of pricing. Bidders are to identify their responses with the bid serial number, title and return address to Maricopa County, Department of Materials Management, 320 West Lincoln, Phoenix, Arizona 85003. **A corporate official who has been authorized to make such commitments must sign bids.**

NOTE: CONTRACTORS ARE REQUIRED TO USE ATTACHED FORMS TO SUBMIT THEIR BIDS.

ATTACHMENT A

PRICING

SERIAL 04166-C			
PRICING SHEET C231004/B0700140			
NIGP CODE 07024			
BIDDER NAME:			
F.I.D./VENDOR #:			
BIDDER ADDRESS:			
P.O. ADDRESS:			
BIDDER PHONE #:			
BIDDER FAX #:			
COMPANY WEB SITE:			
COMPANY CONTACT (REP):			
E-MAIL ADDRESS (REP):			
WILLING TO ACCEPT FUTURE SOLICITATIONS VIA EMAIL: _____ YES _____ NO			
OTHER GOV'T. AGENCIES MAY USE THIS CONTRACT: _____YES _____ NO			
PAYMENT TERMS: BIDDER IS REQUIRED TO PICK ONE OF THE FOLLOWING.			
TERMS WILL BE CONSIDERED IN DETERMINING LOW BID.			
FAILURE TO CHOOSE A TERM WILL RESULT IN A DEFAULT TO NET 30.			
BIDDER MUST INITIAL THE SELECTION BELOW.			
NET 10	_____	NET 90	_____
NET 15	_____	2% 10, NET 30	_____
NET 20	_____	1% 10, NET 30	_____
NET 30	_____	2% 30, NET 31	_____
NET 45	_____	1% 30, NET 31	_____
NET 60	_____	5% 30, NET 31	_____
INDICATE ANY M/WBE PARTICIPATION PERCENTAGE HERE: _____%			
PLEASE INDICATE HOW YOU HEARD ABOUT THIS SOLICITATION:			
_____ NEWSPAPER ADVERTISEMENT			
_____ MARICOPA COUNTY WEB SITE			
_____ PRE-SOLICITATION NOTICE			
_____ OTHER (PLEASE SPECIFY)			
PRICING:			
NOTE: DO NOT INCLUDE SALES/USE TAX IN YOUR BID PRICE. The percentage of sales/use tax			
applicable to this contract will be listed on the purchase order and allowed at time of payment. BIDDERS CERTIFY			
BY SIGNING THIS AGREEMENT THAT PRICES BID ARE F.O.B. DESTINATION IN ACCORDANCE WITH THE			
TERMS AND CONDITIONS SET FORTH HEREIN.			
One (1) or more **BUS, TRANSIT, PRISONER TRANSPORTATION**,		$_____/each	
in accordance with attached specifications.		(to include tire disposal)	
Manufacturer/Model:			
Delivery ARO(state in days):			
F.O.B. Destination: ____Yes ____No			
WARRANTY: (state in writing here, amplifying information/attachments may be added as attachments):			
1. **Body Shell Including Paint Adhesion, Min. 5 YR:**			
2. **Engine, Min. 5 YR or 150,000 mile**:			

ATTACHMENT A

PRICING

3. **Bus Frame**: **(Minimum Acceptable Five Years Unconditional)**								
4. **Transmision, Min. 5 YR 150.000 miles:**								
5. **Drivelines / Differentials, Min. 5 YR or 150,000 mile:**								
6. **Air Condictioning System, All Sealed Compoents Min, 5 yr:**								
7. **Prisoner Cages Assembly / Partitions, Min. 5 YR**:								
8. **Other Warranty Information** - All other component								
installed by the body manufacturer not specified								
elsewhere shall be covered for two (2) years or 50,000								
miles.								
Cutoff date for ordering vehicle and options as specified herein. REQUIRED:								
OPTIONS: Will be used as part of bid award process.								
1. **Alternative Fuel Systems**: (i.e. dedicated, bi-fuel combination fuels,								
compressed natural gas, liquid natural gas, propane and etc.) please								
specify type(s) availability and cost below.								
1.1 Type					$			
1.2 Type					$			
1.3 Type					$			

ATTACHMENT B

AGREEMENT

The Contractors hereby certify that they have read, understand and agree that acceptance by Maricopa County of the Contractor's offer by the issuance of a Purchase Order or Contract will create a binding Contract. Further, they agree to fully comply with all terms and conditions as set forth in the Maricopa County Procurement Code, and amendments thereto, together with the specifications and other documentary forms herewith made a part of this specific procurement.

BY SIGNING THIS AGREEMENT THE SUBMITTING FIRMS CERTIFIES THAT THEY HAVE REVIEWED THE ADMINISTRATIVE INFORMATION AND CONTRACTUAL TERMS AND CONDITIONS LOCATED AT http://www.maricopa.gov/materials AND AGREE TO BE CONTRACTUALLY BOUND TO THEM.

MINORITY/ WOMEN-OWNED SMALL BUSINESSES (check appropriate item):

_____ Disadvantaged Business Enterprise (DBE)
_____ Women-Owned Business Enterprise (WBE)
_____ Minority Business Enterprise (MBE)
_____ Small Business Enterprise (SBE)

FIRM SUBMITTING BID

FEDERAL TAX ID NUMBER

PRINTED NAME AND TITLE

AUTHORIZED SIGNATURE

ADDRESS

TELEPHONE FAX #

CITY STATE ZIP

DATE

WEB SITE: _____

EMAIL ADDRESS: _____

MARICOPA COUNTY, ARIZONA

BY: _____
DIRECTOR, MATERIALS MANAGEMENT

DATE

BY: _____
CHAIRMAN, BOARD OF SUPERVISORS

DATE

ATTESTED:

CLERK OF THE BOARD

DATE

APPROVED AS TO FORM:

MARICOPA COUNTY ATTORNEY

DATE

ATTACHMENT C

CONTRACTOR REFERENCES

FIRM SUBMITTING BID: _____

1. COMPANY NAME: _____

   ADDRESS: _____

   CONTACT PERSON: _____

   TELEPHONE: _____ E-MAIL ADDRESS _____

2. COMPANY NAME: _____

   ADDRESS: _____

   CONTACT PERSON: _____

   TELEPHONE: _____ E-MAIL ADDRESS _____

3. COMPANY NAME: _____

   ADDRESS: _____

   CONTACT PERSON: _____

   TELEPHONE: _____ E-MAIL ADDRESS _____

4. COMPANY NAME: _____

   ADDRESS: _____

   CONTACT PERSON: _____

   TELEPHONE: _____ E-MAIL ADDRESS _____

5. COMPANY NAME: _____

   ADDRESS: _____

   CONTACT PERSON: _____

   TELEPHONE: _____ E-MAIL ADDRESS _____

ATTACHMENT D

CONTRACTOR INFORMATION

IN OUR CONTINUING EFFORT TO INSURE THAT OUR CONTRACTOR REGISTRATION SYSTEM IS CORRECT, PLEASE FURNISH THE FOLLOWING INFORMATION:

LEGAL NAME OF ORGANIZATION/INDIVIDUAL: ______________________________

DOING BUSINESS AS (IF APPLICABLE): ______________________________

FEDERAL TAX ID NUMBER: ______________ MARICOPA COUNTY VENDOR NUMBER: ______________

OWNERSHIP STATUS: INDIVIDUAL/ SOLE PROPRIETOR: ________ CORPORATION: _________ PARTNERSHIP: _________ OTHER: ______________

CORPORATE ADDRESS: ______________________ CITY: __________ STATE: ______ ZIP: ______

TELEPHONE: ______________ FAX: ______________ EMAIL: ______________

WEB SITE ADDRESS: ______________________________

NAME OF CONTACT PERSON: ______________________________

ADDITIONAL ADDRESS FOR: _____ P.O. _____ACCTS RECEIVABLE _____SOLICITATIONS

______________________ CITY: __________ STATE: ______ ZIP: ______

TELEPHONE: ______________ FAX: ______________ EMAIL: ______________

NAME OF CONTACT PERSON: ______________________________

ADDITIONAL ADDRESS FOR: _____ P.O. _____ACCTS RECEIVABLE _____SOLICITATIONS

______________________ CITY: __________ STATE: ______ ZIP: ______

TELEPHONE: ______________ FAX: ______________ EMAIL: ______________

NAME OF CONTACT PERSON: ______________________________

ADDITIONAL ADDRESS FOR: _____ P.O. _____ACCTS RECEIVABLE _____SOLICITATIONS

______________________ CITY: __________ STATE: ______ ZIP: ______

TELEPHONE: ______________ FAX: ______________ EMAIL: ______________

NAME OF CONTACT PERSON: ______________________________

NOTE: NO PREFERENCE IN AWARDING CONTRACTS IS GIVEN TO CONTRACTORS REGISTERED WITH MARICOPA COUNTY DEPARTMENT OF MATERIALS MANAGEMENT, HOWEVER, YOU MUST REGISTER AS A CONTRACTOR IF AWARDED A CONTRACT IN ORDER TO FULFILL THE CONTRACTUAL REQUIREMENTS. CONTACT MATERIALS MANAGEMENT AT (602) 506-8707 FOR A REGISTRATION PACKET.

I HEREBY CERTIFY THAT:

1. **I AM DULY AUTHORIZED TO CERTIFY THE INFORMATION REQUESTED HEREIN.**
2. **TO THE BEST OF MY KNOWLEDGE, THE ELEMENTS OF THE INFORMATION PROVIDED HEREIN ARE ACCURATE AND TRUE AS OF THIS DATE.**
3. **MY ORGANIZATION SHALL COMPLY WITH ALL STATE STATUTES AND FEDERAL EQUAL OPPORTUNITY AND NON-DISCRIMINATION REQUIREMENTS AND CONDITIONS OF EMPLOYMENT IN ACCORDANCE WITH A.R.S. TITLE 41, CHAPTER 9, ARTICLE 4 AND EXECUTIVE ORDER NUMBER 75-5 DATED APRIL 28, 1975.**
4. **MY ORGANIZATION SHALL COMPLY WITH ALL TERMS AND CONDITIONS OF SOLICITATIONS AND CONTRACTUAL DOCUMENTS, REGULATIONS AND LAWS, AND POLICIES AND PROCEDURES SET FORTH IN THE MARICOPA COUNTY PROCUREMENT CODE APPLICABLE TO THE TYPE OF PROCUREMENT (SERVICE OR COMMODITY).**

______________________________ ______________________________

PRINTED OR TYPED NAME **TITLE**

______________________________ ______________________________

SIGNATURE **DATE**

ATTACHMENT D (CONTINUED NEXT PAGE)

Form W-9.doc

Form **W-9**
(Rev. January 2003)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

Give form to the requester. Do not send to the IRS.

Print or type See **Specific Instructions** on page 2.

Name

Business name, if different from above

Check appropriate box: ☐ Individual/ Sole proprietor ☐ Corporation ☐ Partnership ☐ Other ► ---------- ☐ Exempt from backup withholding

Address (number, street, and apt. or suite no.)

Requester's name and address (optional)

City, state, and ZIP code

List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. For individuals, this is your social security number (SSN). **However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3.** For other entities, it is your employer identification number (EIN). If you do not have a number, see **How to get a TIN** on page 3.

Note: *If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.*

Social security number
| | | | – | | – | | | | |

or

Employer identification number
| | | – | | | | | | | |

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), **and**
2. I am not subject to backup withholding because: **(a)** I am exempt from backup withholding, or **(b)** I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or **(c)** the IRS has notified me that I am no longer subject to backup withholding, **and**
3. I am a U.S. person (including a U.S. resident alien).

Certification instructions. You must cross out item **2** above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item **2** does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the Certification, but you must provide your correct TIN. (See the instructions on page 4.)

Sign Here **Signature of U.S. person ►** **Date ►**

Purpose of Form

A person who is required to file an information return with the IRS, must obtain your correct taxpayer identification number (TIN) to report, for example, income paid to you, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA.

U.S. person. Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),

2. Certify that you are not subject to backup withholding, or

3. Claim exemption from backup withholding if you are a U.S. exempt payee.

Note: *If a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.*

Foreign person. If you are a foreign person, use the appropriate Form W-8 (see **Pub. 515,** Withholding of Tax on Nonresident Aliens and Foreign Entities).

Nonresident alien who becomes a resident alien. Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a "saving clause." Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the recipient has otherwise become a U.S. resident alien for tax purposes.

If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement that specifies the following five items:

1. The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.

2. The treaty article addressing the income.

3. The article number (or location) in the tax treaty that contains the saving clause and its exceptions.

4. The type and amount of income that qualifies for the exemption from tax.

5. Sufficient facts to justify the exemption from tax under the terms of the treaty article.

Example. Article 20 of the U.S.-China income tax treaty allows an exemption from tax for scholarship income received by a Chinese student temporarily present in the United States. Under U.S. law, this student will become a resident alien for tax purposes if his or her stay in the United States exceeds 5 calendar years. However, paragraph 2 of the first Protocol to the U.S.-China treaty (dated April 30, 1984) allows the provisions of Article 20 to continue to apply even after the Chinese student becomes a resident alien of the United States. A Chinese student who qualifies for this exception (under paragraph 2 of the first protocol) and is relying on this exception to claim an exemption from tax on his or her scholarship or fellowship income would attach to Form W-9 a statement that includes the information described above to support that exemption.

If you are a **nonresident alien or a foreign entity** not subject to backup withholding, give the requester the appropriate completed Form W-8.

What is backup withholding? Persons making certain payments to you must under certain conditions withhold and pay to the IRS 30% of such payments (29% **after** December 31, 2003; 28% **after** December 31, 2005). This is called "backup withholding." Payments that may be subject to backup withholding include interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

You will **not** be subject to backup withholding on payments you receive if you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return.

Payments you receive will be subject to backup withholding if:

1. You do not furnish your TIN to the requester, or

2. You do not certify your TIN when required (see the Part II instructions on page 4 for details), or

3. The IRS tells the requester that you furnished an incorrect TIN, or

4. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends on your tax return (for reportable interest and dividends only), or

5. You do not certify to the requester that you are not subject to backup withholding under **4** above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See the instructions below and the separate **Instructions for the Requester of Form W-9.**

Penalties

Failure to furnish TIN. If you fail to furnish your correct TIN to a requester, you are subject to a penalty of $50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

Civil penalty for false information with respect to withholding. If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a $500 penalty.

Criminal penalty for falsifying information. Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

Misuse of TINs. If the requester discloses or uses TINs in violation of Federal law, the requester may be subject to civil and criminal penalties.

Specific Instructions

Name

If you are an individual, you must generally enter the name shown on your social security card. However, if you have changed your last name, for instance, due to marriage without informing the Social Security Administration of the name change, enter your first name, the last name shown on your social security card, and your new last name.

If the account is in joint names, list first, and then circle, the name of the person or entity whose number you entered in Part I of the form.

Sole proprietor. Enter your **individual** name as shown on your social security card on the "Name" line. You may enter your business, trade, or "doing business as (DBA)" name on the "Business name" line.

Limited liability company (LLC). If you are a single-member LLC (including a foreign LLC with a domestic owner) that is disregarded as an entity separate from its owner under Treasury regulations section 301.7701-3, **enter the owner's name on the "Name" line.** Enter the LLC's name on the "Business name" line.

Other entities. Enter your business name as shown on required Federal tax documents on the "Name" line. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on the "Business name" line.

Note: *You are requested to check the appropriate box for your status (individual/sole proprietor, corporation, etc.).*

Exempt From Backup Withholding

If you are exempt, enter your name as described above and check the appropriate box for your status, then check the "Exempt from backup withholding" box in the line following the business name, sign and date the form.

Generally, individuals (including sole proprietors) are not exempt from backup withholding. Corporations are exempt from backup withholding for certain payments, such as interest and dividends.

Note: *If you are exempt from backup withholding, you should still complete this form to avoid possible erroneous backup withholding.*

Exempt payees. Backup withholding is **not required** on any payments made to the following payees:

1. An organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2);

2. The United States or any of its agencies or instrumentalities;

3. A state, the District of Columbia, a possession of the United States, or any of their political subdivisions or instrumentalities;

4. A foreign government or any of its political subdivisions, agencies, or instrumentalities; or

5. An international organization or any of its agencies or instrumentalities.

Other payees that **may be exempt** from backup withholding include:

6. A corporation;

7. A foreign central bank of issue;

8. A dealer in securities or commodities required to register in the United States, the District of Columbia, or a possession of the United States;

9. A futures commission merchant registered with the Commodity Futures Trading Commission;

10. A real estate investment trust;

11. An entity registered at all times during the tax year under the Investment Company Act of 1940;

12. A common trust fund operated by a bank under section 584(a);

13. A financial institution;

14. A middleman known in the investment community as a nominee or custodian; or

15. A trust exempt from tax under section 664 or described in section 4947.

The chart below shows types of payments that may be exempt from backup withholding. The chart applies to the exempt recipients listed above, **1** through **15.**

If the payment is for . . .	THEN the payment is exempt for . . .
Interest and dividend payments	All exempt recipients except for **9**
Broker transactions	Exempt recipients **1** through **13.** Also, a person registered under the Investment Advisers Act of 1940 who regularly acts as a broker
Barter exchange transactions and patronage dividends	Exempt recipients **1** through **5**
Payments over $600 required to be reported and direct sales over $5,000 [1]	Generally, exempt recipients **1** through **7** [2]

[1] See **Form 1099-MISC**, Miscellaneous Income, and its instructions.

[2] However, the following payments made to a corporation (including gross proceeds paid to an attorney under section 6045(f), even if the attorney is a corporation) and reportable on Form 1099-MISC are **not exempt** from backup withholding: medical and health care payments, attorneys' fees; and payments for services paid by a Federal executive agency.

Part I. Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. If you are a **resident alien** and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see **How to get a TIN** below.

If you are a **sole proprietor** and you have an EIN, you may enter either your SSN or EIN. However, the IRS prefers that you use your SSN.

If you are a single-owner **LLC** that is disregarded as an entity separate from its owner (see **Limited liability company (LLC)** on page 2), enter your SSN (or EIN, if you have one). If the LLC is a corporation, partnership, etc., enter the entity's EIN.

Note: *See the chart on page 4 for further clarification of name and TIN combinations.*

How to get a TIN. If you do not have a TIN, apply for one immediately. To apply for an SSN, get **Form SS-5,** Application for a Social Security Card, from your local Social Security Administration office or get this form on-line at **www.ssa.gov/online/ss5.html**. You may also get this form by calling 1-800-772-1213. Use **Form W-7,** Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or **Form SS-4,** Application for Employer Identification Number, to apply for an EIN. You can get Forms W-7 and SS-4 from the IRS by calling 1-800-TAX-FORM (1-800-829-3676) or from the IRS Web Site at **www.irs.gov**.

If you are asked to complete Form W-9 but do not have a TIN, write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments. The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

Note: *Writing "Applied For" means that you have already applied for a TIN **or** that you intend to apply for one soon.*

Caution: *A disregarded domestic entity that has a foreign owner must use the appropriate Form W-8.*

Part II. Certification

To establish to the withholding agent that you are a U.S. person, or resident alien, sign Form W-9. You may be requested to sign by the withholding agent even if items 1, 3, and 5 below indicate otherwise.

For a joint account, only the person whose TIN is shown in Part I should sign (when required). Exempt recipients, see **Exempt from backup withholding** on page 2.

Signature requirements. Complete the certification as indicated in **1** through **5** below.

1. Interest, dividend, and barter exchange accounts opened before 1984 and broker accounts considered active during 1983. You must give your correct TIN, but you do not have to sign the certification.

2. Interest, dividend, broker, and barter exchange accounts opened after 1983 and broker accounts considered inactive during 1983. You must sign the certification or backup withholding will apply. If you are subject to backup withholding and you are merely providing your correct TIN to the requester, you must cross out item **2** in the certification before signing the form.

3. Real estate transactions. You must sign the certification. You may cross out item **2** of the certification.

4. Other payments. You must give your correct TIN, but you do not have to sign the certification unless you have been notified that you have previously given an incorrect TIN. "Other payments" include payments made in the course of the requester's trade or business for rents, royalties, goods (other than bills for merchandise), medical and health care services (including payments to corporations), payments to a nonemployee for services, payments to certain fishing boat crew members and fishermen, and gross proceeds paid to attorneys (including payments to corporations).

5. Mortgage interest paid by you, acquisition or abandonment of secured property, cancellation of debt, qualified tuition program payments (under section 529), IRA or Archer MSA contributions or distributions, and pension distributions. You must give your correct TIN, but you do not have to sign the certification.

What Name and Number To Give the Requester

For this type of account:	Give name and SSN of:
1. Individual	The individual
2. Two or more individuals (joint account)	The actual owner of the account or, if combined funds, the first individual on the account [1]
3. Custodian account of a minor (Uniform Gift to Minors Act)	The minor [2]
4. a. The usual revocable savings trust (grantor is also trustee)	The grantor-trustee [1]
b. So-called trust account that is not a legal or valid trust under state law	The actual owner [1]
5. Sole proprietorship or single-owner LLC	The owner [3]
For this type of account:	**Give name and EIN of:**
6. Sole proprietorship or single-owner LLC	The owner [3]
7. A valid trust, estate, or pension trust	Legal entity [4]
8. Corporate or LLC electing corporate status on Form 8832	The corporation
9. Association, club, religious, charitable, educational, or other tax-exempt organization	The organization
10. Partnership or multi-member LLC	The partnership
11. A broker or registered nominee	The broker or nominee
12. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments	The public entity

[1] List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

[2] Circle the minor's name and furnish the minor's SSN.

[3] **You must show your individual name,** but you may also enter your business or "DBA" name. You may use either your SSN or EIN (if you have one).

[4] List first and circle the name of the legal trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.)

Note: *If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.*

Privacy Act Notice

Section 6109 of the Internal Revenue Code requires you to provide your correct TIN to persons who must file information returns with the IRS to report interest, dividends, and certain other income paid to you, mortgage interest you paid, the acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA or Archer MSA. The IRS uses the numbers for identification purposes and to help verify the accuracy of your tax return. The IRS may also provide this information to the Department of Justice for civil and criminal litigation, and to cities, states, and the District of Columbia to carry out their tax laws. We may also disclose this information to other countries under a tax treaty, or to Federal and state agencies to enforce Federal nontax criminal laws and to combat terrorism.

You must provide your TIN whether or not you are required to file a tax return. Payers must generally withhold 30% of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to a payer. Certain penalties may also apply.